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*With the author's comments  
to Wm. P. Nimmo.* *W. P.*  
S H E E P;

THEIR

HISTORY, MANAGEMENT, DISEASES,

AND

NATIONAL VALUE:

WITH REMARKS ON

THE TRANSIT OF STOCK.

BY

~~WILLIAM REID,~~

~~WOOLBROOK, ETC.~~



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AND A. ELLIOT.

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## PREFACE.

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**T**HE Author of the subjoined treatise has two objects in view in venturing into print on such important subjects as those treated of therein. The first is to show that Great Britain as a wool-growing country is rapidly losing her position, when more than ever the expansion of her population demands an opposite result; and the second is what he may term a last effort to impress upon the public, that by permitting their food to be wasted by imperfect means of transit, they are committing a grievous error, that will sooner or later act most injuriously on British interests, both at home and abroad. Whether he will succeed in either of these objects, he may not even venture to guess; but this he is satisfied of, that the time is not far distant when this question will have assumed a magnitude that will materially act upon the nation's weal, and will then call for

remedies which may prove to have come too late for any other purpose than to fulfil the old English and Latin proverbs—"When the steed's stolen, shut the stable door:" "*Quando quidem accepto claudenda est janua damno.*"

A. B. L.  
W. H.

GRANTON LODGE,  
April 10, 1871.







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# S H E E P:

## THEIR HISTORY, MANAGEMENT, AND NATIONAL VALUE.

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### CHAPTER I.

#### THEIR HISTORY.

**O**F all the animals a bountiful Creator has given to man for his most pressing wants, there is none upon which he so much depends as the harmless Sheep. With it in abundance, and skill to perceive its multifarious uses, he may begin and end his career without having recourse, for the sake of either food or clothing, to the slaughter of any other animal. As if to mark the importance to the human family of the genus *Ovis aries*, although attention to its feeding and rearing was not the first vocation of man on earth, it is the first-mentioned occupation in the oldest historical record we possess—for “Abel was a keeper of sheep.” And still further is it worthy of note, that the first vocation also men-

tioned of woman in that same book is a shepherdess, as Rachel kept her father's sheep. From the day when that gentle worshipper offered up his acceptable sacrifice of the firstlings of his flock, and the hour when that modest Hebrew maiden received the first kiss of love from her future husband, down to the present time, the sheep has played an important part in the welfare of the human race.

But if the sheep was valued by the primeval Easterns both for its intrinsic and typical worth, it must be doubly so to people living in a climate where animal food and warm clothing are indispensable, and where every rood of earth has its human burden to bear; or where, as the eminent historian Froude has said, the disheartening word "Engaged" is written on every spot, lintel, and place. The history of this animal, and all that pertains to its development, is therefore a subject worthy of serious consideration, and one in which everybody may take an interest; for, as the old Swedish proverb says, "Sheep have golden feet, and wherever the print of them appears, the soil is turned into gold."

The best living authorities are inclined to believe that our domestic sheep are a species by themselves, and have not been derived from either the Argali of Asia or the north, the bearded sheep of Africa, the Mufflon of the Rocky Mountains, or the

Musmon of Corfu and Cyprus. But as this is mere conjecture, and materials are still wanting to fix their generic distinction, we will first describe some of the varieties they are supposed to have sprung from, and then go over in detail the peculiarities of the sheep of other countries, leaving our readers to judge for themselves as to the origin of the British sheep.

The ARGALI of Asia, both from his superior size and beauty, we put first in order. He is a perfect giant amid the ovine race. With a body almost as large as a moderate-sized ox, of a stout build, and with horns four feet long, he treads his native wilds a rather formidable fellow. These horns of his, about nineteen inches in circumference at the base, spring outwards from the forehead, and after rising perpendicularly for some distance, curve boldly downwards until they come below the side of his head, when they take an upward turn, as they come gradually to a point. Otherwise his horns much resemble a Highland ram, being covered with deep grooves almost to their tips. Strong as these weapons are, and firmly as they seem fixed on the animal's forehead, they are often snapped off in the battles which these creatures wage, when contesting the possession of some favourite female. For these severed horns nature soon finds a fitting place, as they are almost instantly picked up by foxes and other

animals, and reared into dwelling-places, in which they lie as snugly as the young lobster in his first improvised shell. The horns are also used by man in various ways. The coat of the Siberian Argali, both in colour and kind, varies with the seasons. In summer it consists of short hair, and is of a brownish colour; and in winter the hair lengthens, is underlaid with a soft coating, and becomes gradually grey as the season advances, with buff-coloured streaks along the back, and a large spot of the same hue on the haunch and its short tail.

The female Argali is much smaller than the male, but is likewise horned. Both sexes are remarkable for agility and strength, and their swiftness of foot is so extraordinary that they have often in consequence been ranked with the deer rather than the sheep. When the size of the Argali is considered, the male generally weighing about 220 lbs., the rapidity of its motions on the craggy slopes to which it takes when disturbed, is truly marvellous. Up amid these rocky fastnesses, its home when done with pasturing in the valleys, the poor beast is subjected to severe hardships, and is often entirely enveloped in deep snow-drifts; for, owing to its extreme timidity, it lingers not in the vicinity of man. There, however, it lies securely, breathing gently through a hole in the snow, nature having given it the instinct of the hare, which acts in the same way in severe



weather. In this position the locked-up Argali becomes the easy prey of the hunter, who, having thus overtaken his fleet-footed quarry, thrusts his spear through its body. Like our own domestic sheep, when affrighted, it always runs in a zig-zag way, and frequently stops to gaze at the cause of its alarm. The Argali of Asia must be termed gregarious, as it is always found in flocks of eight or ten. It may be tamed when taken young, but never when old will it resign its natural wildness.

BIG-HORN, another fine specimen of the Mufflon, or Rocky Mountain sheep, is a native of America, but most abundant in the Californian district of that continent. Several naturalists think that Big-horn is of the same ilk as the Argali of Asia, he, by means of the ice at Behring Straits, having crossed to America. Be that as it may, there he is, and that, too, the only indigenous representative of his race in that vast country. Very much resembling his Asiatic prototype, both in size, colour, and agility, he is also gregarious, being often found in little troops of between twenty and thirty, up amongst the craggiest and most inaccessible rocks. His horns also attain a great size, and are frequently so curved that they prevent the animal from feeding on level ground. This is probably the cause of Big-horn's proclivity for the clefts of the mountains, in which he finds little knolls of green herbage of easy access, and suffi-

cient to satisfy his wants. The flesh of this animal is considered a delicacy, and is said to be superior to that of the deer. The wool also is very fine, being about an inch and a half long, and is completely concealed by long shaggy hairs. Although hitherto supposed to be untamable, owing to their peculiar shyness at the approach of man, it has been thought by some that they might be domesticated.

The lively but rather petulant Aoudad is another species from which our sheep is supposed to have sprung. It is a native of the north of Africa, and vegetates only on the loftiest parts of the Atlas mountains. Although frequently called the Bearded Argali, it in reality has no long hair on its chin. Seen from a distance, with its mouth on the ground in search for food, it does appear to possess that striking peculiarity; but this optical illusion is caused by the animal's possessing long shaggy hair in great abundance from the throat down to its fore hoofs. The rest of the covering of the Aoudad is short hair, with an under garb of fine short wool. Its general appearance is more goat than sheep like, as its horns grow upwards and backwards, its colour is reddish-yellow, and its tail terminates with a tuft of long hair. Like Big-horn and the Argali, it is remarkably sure-footed, and can find a living amid precipices where man with all his skill dare not venture; and

although not so large as the Argali, is nevertheless a sprightly, well-formed animal, standing fully three feet high at the shoulder. The Aoudad is very timid and gentle, and full of curiosity.

The MUSMON, or wild sheep of Greece and the Isles of the Mediterranean, is the farthest removed from our domestic sheep, both as to its covering and wild nature. It is not much smaller than our fallow-deer, and is thickly covered with shaggy hair, which, with the approach of winter, gets softer, but never assumes a thorough woolly texture. The back and sides of this timid animal are of a brownish hue, while its belly and legs are almost white. Like the Aoudad, its neck is covered with long hair, and its tail is merely a stump. But withal, the Musmon is very formidable looking, being possessed of gigantic horns, nearly as large as those of the Argali. When perched on a lofty peak of its native mountains, where it is invariably to be found, it has the appearance of a very large animal. Standing thus, with neck arched, as if to show its most powerful horns and head, he would be a bold man, who, not knowing its timid nature, would venture a near approach to its chosen height; yet there are sportsmen who glory in having captured not a few of these animals.

It will be seen from the foregoing that there are many striking resemblances between what is

termed the wild and the tame sheep. The wild sheep is invariably gregarious, has strong rock-climbing propensities, is of a timid nature, and its covering is woolly, while its flesh is good. Our domestic sheep run together as naturally as the needle does to the magnet, and remain together so long as there is the slightest alarm or danger; while for daring among our mountain slopes they baffle our ideas of gravitation. When let alone they are sure to seek the highest eminence, and seem to take pleasure in exposing themselves to danger. We have witnessed several of these exploits, but one in particular is worthy of mention, as it will show that the reputation the sheep has earned for stupidity, because it follows without scruple its leader, is not more applicable to it than it is to the proudest biped. While looking over a dangerous headland in the extreme north of Scotland, we observed two sheep nibbling away at a small tuft of grass far down among the cliffs. Suddenly there arose the bleat of a lamb. Up went the head of the smallest of the two nibblers, a very tiny ewe; but how to get up to the crying lamb was the question—to us, not to the ewe—for, jammed as she was by her companion, she could neither get up nor down. A look into each other's face was sufficient to settle the difficulty. Another "baa" and the larger of the two sheep moved scientifically backwards,

then kneeled down, while the intelligent ewe felt with its hoofs a sure place on which to pass over. This extraordinary feat was performed over the heaving of waves which had nothing to break their force or volume from that precipice to the coast of Norway.

Almost every country under the sun has its own peculiar sheep, just as almost every county in Britain has its own particular cross. Syria, Egypt, Africa, Russia, India, and China, each and all produce what is called the fat or broad-tailed sheep; and during recent years, the British colony of the Cape of Good Hope has reaped rich rewards from paying attention to the development of this valuable animal, now in great abundance there. Its growth is rather diminutive, and it possesses a very fine soft wool. But not to its wool is its principal value attached. The tail it carries has "wecht," and is esteemed a great delicacy. Indeed, this final appendage often weighs more than a fourth of the entire animal. A mass of fat hangs on each side of it, which, with proper care, has been known to grow to an extraordinary size, weighing sometimes 70 lbs. or 80 lbs. It is used in the kitchen instead of butter or oil, and is not so solid as other fat. To save this valuable portion of the animal from bruises, when it grows to any great size, the shepherds improvise a sort of wheelbarrow to carry it. This is formed of a thin piece

of board, with wheels attached to it, on which the tail is laid. That sheep have carts to carry their own tails may seem strange to the British farmer.

Another peculiar type of foreign sheep is the Icelandic one. They are of a very small size, but are often possessed of as many as eight horns—the great majority of them having more than two. These strange-looking animals are very hardy, and can live on the scantiest fare. They have a double covering of long and short wool, and their flesh is of the very finest quality. Exposed as Icelandic sheep often are, they show a fine sagacity in making the best of the circumstances under which they are placed. When the bleak north winds sweep around their island home, they run together, and wedge themselves into a compact mass, while those in the centre relieve in turn their fellows in the outer circle, thus keeping a kind of constant motion and general warmth up in the entire flock. The same breed, or many-horned sheep, is also found in some of the most northern parts of Russia, and are said to be possessed of the same peculiarities.

The "sunny south"—Spain and Italy—has also given much attention to the rearing of sheep, and have each their own particular type of this inestimable animal. But Italy in this, as in many other things, is not so renowned now as of old. The time was when the noble Italian made the growth of wool his greatest delight, and the care and at-

tention he bestowed on that profitable occupation, might put to shame our best attempts in this direction. Instead of exposing the poor brutes to the weather of all seasons, he housed and *clothed* them, that their wool might become delicate and fine; and these houses were daily washed, cleaned, and fumigated. The Italian shepherd also washed his entire flock several times in the year, and thereafter smeared their skin with fine oil, moistened it with wine, and then combed the fleeces carefully. His lambs, too, were anxiously watched, and their every want attended to. It may be true that such over-careful treatment caused that fine breed to become tender, and consequently liable to disease, but the error was at least humane, and will stand in rather favourable comparison with the British stock-farmer's actions, when that subject comes under treatment in the remarks on the "Transit of Stock." The Italian shepherd and sheep proprietor now-a-days are very different from their ancestors, and allow their fine-woolled sheep to go to ruin for want of attention.

Thanks to the Blackfriars, however, there is still one breed of sheep attended to in Italy. In our country a "black sheep," walking on four legs, is rarely to be met with, but there they are to be seen in flocks, being attended to with as great care as the Friars, for whose special clothing they are so anxiously nurtured. A dyer's finger dare not touch

the wool that covers this holy order: it must go in its purity from the skin of the black sheep to the back of the Black Friar. To be "white as wool" has a glorious significance, and a ring in the very utterance of it that makes the heart feel joyous; but to be clothed "like a black sheep" in this country, at least, cannot be uttered without a shadow on the brow, and a hiss from the teeth. But there is no accounting for tastes.

Far back in history, even prior to the conquest of Spain by the Moors, that country held a foremost place in Europe for its sheep and wool; but, during the dominion of that intelligent and powerful race, Spain became famous as the finest wool-producing country in the world. The Moors left their architecture and their looms as monuments of a great people.

Spanish sheep, like those of other countries, vary much in size according to the district in which they are reared—large, well-clothed animals being found on its valleys and plains, and small, hardy sheep amid its mountain ranges. No other country has so many diversities of the *Ovis aries* as Spain; and this has been accounted for by the various tribes and nationalities who have held sway in that country having each brought with them their own breed, with which they crossed those of Spain. The Phœnicians took with them their large Asiatic sheep, and knew how to use



them; thereafter the Romans, when in their glory, introduced their richly-delicate animals; and lastly, the Moors brought their finest domesticated African type of sheep—all to increase the future commercial greatness of that once powerful country. It has been stated, as evidence of this, that the marble city of Seville had at one time 16,000 looms constantly at work; but in this, as in almost every other point of superiority, Spain has lost its precedence.

Generally speaking, the sheep of Spain may be divided into two classes, namely, the long-woolled and the short-woolled. But that class of the latter variety, which derives its name from the Spanish word *merino*, is by far the most numerous and valuable. However, like our own Leicester, the origin of this sheep is shrouded in mystery—several professed authorities maintaining that it is a cross between the Spanish and African, while others hold that England gave to Spain the fine MERINO SHEEP. This latter conjecture is based upon the fact that Stow, in his "Chronicles," says that in the year 1464, "King Edward gave a license to pass over certain Cotteswolde Sheep into Spain." But a narrow inspection of the Merino, particularly as to its nature, formation, and colour, goes far to disprove this opinion. It has much of the African and Asiatic type in its long legs, flat sides, and narrow chest; and altogether has natural instincts

closely resembling those of the sheep of a warmer climate than England.

The skin of the real Spanish Merino is of a reddish or fleshy colour, and the wool a fine white, while the legs, face, and ears are often tinged with a dingy hue. Right on the centre of its forehead is a tuft of coarse wool, which gives the animal a strange appearance when viewed in combination with a peculiar looseness of skin under the throat. This last peculiarity is highly valued by Spanish shepherds as a symptom of rich productiveness of fleece. The wool of the Merino is very close and short, but it weighs more for its bulk than that of any other known sheep.

One striking peculiarity of the Merino sheep is, that if left unclipped for two seasons, the wool will double its length, and yet retain its fine texture. Cases are on record where Merinoes were shorn after having been put aside for a year, and yet such fleeces weighed about twenty pounds each, the length of "pile" being eight inches; while the sheep thus used are said to be uninjured by retaining their fleece for such a lengthened period.

The male Merino has fine spiral horns, which, always very symmetrical in their curve, are not unlike those of our own black-faced Highland sheep. The female is invariably without horns, and is a very bad nurse—so bad indeed that their

lambs have often to be killed on that account. Some Spanish shepherds, in narrowly watching how best they may secure good fleece producers, calculate that it takes two ewes to bring one good lamb to first-rate maturity ; but as the flesh of the Merino is not very valuable, this apparent loss is not much thought of, being more than counter-balanced by the high price paid for such first-class clips.

As before stated, the Spaniard of the middle ages gave much time and attention to looking after his flock ; some of the writers of that era even asserting that several individuals possessed as many as 50,000 sheep. Then as now the practice was to drive their flocks to the cooler countries of the north during the summer, and *vice versa* during the winter, and thus a continual system of migration went on, which even now-a-days gives employment to about 50,000 shepherds and 30,000 dogs. These migratory sheep are reckoned to number ten millions, or about one-half the entire produce of Spain. The commencement of these journeys takes place about the middle of April ; and during the course of their northward progress they are shorn in premises improvised for the occasion. Upwards of six weeks are occupied in these walks, and it is wonderful how, with attention to feeding and watering, those quiet animals can go over several hundreds of miles in such a short space of

time. Each flock numbers about 1000, and is superintended and driven by a principal shepherd with various assistants. Living in the most abstemious way, these shepherds are able to make such journeys at very little cost. Sheep dying on the road by accident, or otherwise, are not lost, but are eaten by them with as much relish as the dark bread, oil, and garlic, which is their everyday meal. Although not living in a cold climate, it is strange that the Spaniard to this day is so fond of oil. Down to the blubber of the common porpoise, to him nothing comes amiss that has fat in it. These shepherds seldom marry. They rapidly acquire a love for their calling, and are seldom known to change it for the common ways of man. There is a captivating romance in their life, which, having little means of being tempered by civilisation, is not uninviting. They sleep on the ground when travelling, wrapt in their large cloaks, like the Highlander in his plaid; and in cold weather they erect rude huts, and live with a freedom and ease truly surprising.

Under the superintendence of these shepherds—the principal of whom is termed the “mayoral,” and is a little despot in his way—these flocks begin their southward journey in the month of September, and after a leisurely march, arrive at the pasture-grounds, which are at once recognised by the knowing animals as their home for the time.

Here the winter folds are prepared, and here the young lambs are born, either in March or April. Shortly after lambing time a peculiar restlessness takes possession of these sheep, and unless they are at once set agoing on their upward journey, they will do so of their own accord. Entire flocks have been known to escape and make their way to their old quarters, without the guidance of either shepherd or dog, and have met with no mishap farther than the snap of a prowling wolf, bold enough to risk the chance that no protector is within shot.

For centuries the Spaniard kept his hold on his favourite Merino almost to a complete monopoly. With the prestige of a country in decline, its commerce invariably follows, and Spain was forced to let its favourite Merino slip to other countries, that now overtop it in every respect. The Swedes were the first who benefited by an importation of this animal, and from the year 1723 so have they taken advantage of their choice, that now fully one-sixth of their sheep are Merinoes, either pure or mixed. Since then, France and Germany have been benefited by following the example of Sweden, and are every day increasing their store of this valuable stock.

Britain has also tried to make something of the Merino sheep, but without much success. One of our Georges—who was rather partial to the impor-

tation of more kinds of foreign stock than one—made a somewhat cunning effort to introduce that breed into this country; but this selection—like the others—proved bad. Afterwards, however, a more open manner was chosen to get what was necessary, and the Spanish Government immediately sent a few choice Merino sheep to George III. The munificent king at once acknowledged the compliment, and despatched to Spain in return, eight splendid coach horses—evidently showing that horse-flesh was not then up to mutton. This dearly-purchased flock was thereafter sent to the royal farm, where they suffered much from foot-rot and other troubles, caused, doubtless, by the manner in which they were brought thither. Little, however, came of this royal attempt to make our country rich. Since then all attempts to use this valuable animal in Britain to advantage have failed. A society was formed for the especial purpose of giving the project a fair trial, but its expectations were not realised. Naturalised Merinoes have succeeded better; but as mutton as well as wool is a desideratum to our stock farmers, they must use that quality of stock that combines both; and therefore it is that the famous Spanish sheep must be allowed to remain where pastures are plenty and people few; while thus it is that Australian sheep-farmers are at present enabled to throw into Europe and America their

enormous stores of fine wool, the principal value of which is derived from the sheep of that country being crossed with the European Merino.

By a gradual process, the most important part of our subject has now been arrived at, namely,—the history, management, and national value of our British sheep. While of its early history but little is known, undoubted proof has been established to show that prior to the Roman invasion there existed sheep on these islands. The ancient catacombs of Britain abound with the remains of sheep bones. But to the Romans it is due that this country became famous for the production of wool, that article being then of more value than either mutton or lamb. While, however, our woollen productions were highly prized in Rome during the dominion of that power, it was not until the seventh century that any particular mention is made about sheep, and then it was by an edict fixing the price to "One shilling until fourteen nights after Easter;" or about 8s. 6d. per sheep, if the different value of money of our day is considered. About the beginning of the twelfth century sheep sold at 13s.; but during the reign of Henry II. their price had risen to 25s. Again, in 1531, sheep sold at 2s. 10d., and a paternal Parliament fixed the price of mutton for that year at  $\frac{3}{4}$ d. per lb. Extraordinary things

were done in these days by acts of Parliament, for in 1532 no man dare allow his flock of sheep extend beyond 2000. But with all these restrictions, they did increase, and were calculated to amount to about twelve millions in the beginning of the eighteenth century. In 1741 it is said there were  $16\frac{1}{2}$  millions of sheep in Great Britain; in 1774,  $25\frac{1}{2}$  millions; and at the present day we are informed there are 34,532,000 sheep in these isles of ours—no mean proportion of our national wealth, the further development of which is a direct national necessity and gain.

To describe fully the various peculiarities of British sheep and their crosses would be a task of no ordinary kind. Owing to the universal practice of crossing, for the purpose of getting at the highest development of mutton and wool, so intermixed have the breeds become that it is questionable if there is one pure sheep of the original stock bred in Britain; while no country contains so many different kinds of sheep as the British Isles. This may be readily accounted for by the geological diversity of its surface, and the easy access the sheep of one district have to that of another. We have mountains of great height for the hardiest type—the Highland blackfaced; we have hills like the Cheviot for the fine sheep of that name, also very hardy; the midland counties of England for the more delicate Downs; and the “garden of



England" for the very fine, readily-matured, Leicester.

Sheep are not unlike human beings in the characteristics they assume through variety of food and climate. When up among their native mountains, struggling vigorously for the sweetest nibble, they are a hardy race; but when down amid clover, with nothing to do but eat the richest fare and then sleep, they become as tender as hothouse plants.

The spirit of enterprise characteristic of the Briton, and the limited surface over which he has to exercise it, combined with the favourable position of his seaport towns for shipping purposes, have excited him to try every art to make the most of all he possesses; and this is another means whereby we have increased our varieties of sheep by largely importing foreign stock wherewith to experiment.

It being all but impossible, therefore, to enter into every point of variety of the British sheep, we will merely describe the more prominent features of what is termed the representative class—long-woolled and short-woolled—omitting to particularise the third or "middle-woolled" kind, as it has not yet been clearly decided where to draw the line of demarcation between the latter and the two former varieties. We shall not, however, as others have done, assert that one class is more valuable

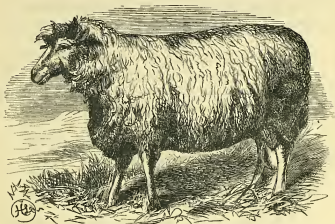
than another, for each in its own locality, if properly managed, is worthy the highest consideration, both in a commercial and a national point of view. Unlike other kinds of stock, the various stages of the British sheep is fixed from the time of clipping, and not from the date of birth : as for instance, a two-year-old is virtually three months older, because the first "shear" includes fifteen months or so. The names vary much according to locality, both in England and Scotland, but the following may be taken as the most general :

*Males.*—Tup lamb, till weaned ; tup hog, or wether hog if castrated, from weaning till first shearing ; tup, shearling tup, or shearling wether, from first to second clip ; two shear-ram, and two-year-old wether, from second till third clip, and so on.

*Females.*—Ewe lamb, till weaned ; ewe hog, from weaning till first shearing ; gimmer from first to second clip ; quintor, or young ewe, from second to third clip, or in Sutherlandshire and other districts in the North of Scotland, when kept from the ram while gimmers, are then called maiden ewes ; after this age they are known as four or five year old ewes, and so on, being the age they are generally disposed of, and are known in the Inverness and other stock markets, when sold by character, as cast or draft ewes ; ewe, if in lamb ;

barren gimmer, if not in lamb ; and if not put to the tup, yeld gimmer.

After being thrice shorn, tups and ewes are termed three-shear ; and from that date are called aged. A barren ewe is so called, when she fails to bear a second lamb ; when ceasing to give milk she is termed a yeld ewe ; and when taken from the breeding flock, a draft ewe, or draft gimmer, as the case may be.



EARLY TYPE OF LEICESTER.

THE LEICESTER may be noticed first, as the largest specimen of the long-woolled type of sheep. It derives its name from the county out of which it originated, and has now no Lowland rival either

for weight or early returns. The head of the Leicester is very small, but it has a fine broad breast. It has a full eye, thin ears, and a short neck; and in all respects is very symmetrical in form. It is uncommonly docile and tender, though not so prolific as many other breeds. The origin of this famous sheep was due to one Robert Bakewell, of Dishley; but from whence he got the parent stock is to this day unknown, although it is generally believed to have been the old Leicester. This Mr Bakewell was a man of great enterprise in sheep breeding, and lived to reap the fruits of it. To this day the Leicester is termed in honour of Mr Bakewell, the "Dishley Pet." This gentleman began his experiments in the year 1755, and was the first to introduce the letting system. He had so far succeeded in 1784 that he realised 100 guineas for the use of his best ram. Two years later he received 1000 guineas by letting out his stock; and in 1789 he got the enormous sum of 3200 guineas out of ten rams; while the Dishley Society gave him 3000 guineas for the use of his stock.

The principal value attached to the Leicester is its extraordinary suitableness to cross with almost any kind of sheep, and that to advantage. The immense improvements brought to bear upon almost all our sheep stock have been derived from the Leicester. Indeed, go where you will,

either at home or abroad, and there you will find features of this truly wonderful animal. Another advantage it has over most other breeds is its disposition to fatten in a very short time, no other sheep being so soon ready for the butcher. The Leicester will fatten in one year, and arrive at maturity in two, and thus, as a rent producer, occupies a prominent place. They vary much in size, weighing, at about a year and a-half old, from 28 lbs. to 37 lbs. per quarter. The mutton of the Leicester, however, is not considered a delicacy, and seldom brings first prices; but as its bones are very small, the additional weight of mutton compensates for its quality. When over two years, the quantity of fat they take on greatly deteriorates the value of the carcass. The wool of the Leicester is also inferior to the finest quality of Scotch Cheviot, and is principally used in the manufacture of carpets; but Half-bred crosses between Cheviot or Leicester, whether hog or wether wool, is first-class, and fetches the highest price. It is about 7 inches long, and the fleece generally weighs from 7 lbs. to 10 lbs.

Lincolnshire has another type of long-woolled sheep, for which it has been celebrated from time immemorial, and from which has sprung the famous Teeswater breed, the most prolific animal of this class in the world, instances being on

record where five lambs were got at a birth. The old breed, now almost extinct, was a very peculiar animal, and is described by Ellis as "the longest-legged and largest-carcased sheep of all others; and although their legs and bellies were for the most part void of wool, yet they carried more wool on them than any sheep whatsoever." The modern LINCOLN is the largest sheep in Europe, and often weighs 240 lbs. It has no horns. Being a slow feeder, and having a consequent tendency to accumulate internal fat, it is held in repute by butchers; but breeders find that to fill out their long, lank, large-boned carcasses requires an amount of food that is not often met by the prices fetched. The wool of the Lincoln is about eleven inches long, and in some instances reaches to the ground; while the fleece often weighs 16 lbs., and is principally used in the manufacture of "lustre" goods—pretty close imitations of alpaca and mohair. Like every other breed of lowland sheep, the Lincoln has been greatly improved, both as to quality of mutton and wool, by crossing with the famous Leicester.

The COTSWOLD or GLOUCESTER, another variety of the long-woolled sheep of England, is said to have derived its name from *cots* or sheds put up for shelter, and *wold* a naked hill. This breed was highly esteemed for its wool more than five centuries ago, which at that time fetched the

enormous price of 4s. per lb., at the present value of money. Since, then, however, it has been much changed by crossing. Historians mention that even royal gifts were made of the Cotswold, so highly was it prized. In 1464 Edward IV. granted a license for the transportation to Henry of Castile of a few choice sheep of this breed; and four years later a similar present was sent to John of Aragon. The modern Cotswold, as developed by good Leicester blood, produces shorter wool and better mutton than did its progenitor, and is even larger than the "Dishley Pet," while its wool is of a strong and good colour, and is very close on the body; the staple measuring from six to eight inches. If properly treated, the Cotswold is a hardy sheep. The ewe is very prolific, and is a good nurse. Welsh stock-farmers have a particular opinion as to the value of this sheep, and have made many and successful experiments in improving them; so much so, that at this time they are most extensively used over all parts of their country.

The Sheep of ROMNEY MARSH also belong to the long-woolled type. They are a hardy, large-boned race, and thrive well in their most exposed habitat, keeping up a fair appearance even in mid-winter on the smallest diet of good hay. Possessed of long thick heads and carcasses, and coarse stringy wool, they are easily distinguished

from the sheep of other districts; for although at this day they are greatly changed by the universal improving Leicester, which has at length found its way there as everywhere else, their ancient characteristics may be seen at a glance. One special reason why these sheep maintain their individuality more than most others is, that the district on which they have been reared for centuries has no stock-feeding equal in this country. The Holland of England is Romney Marsh, being 30,000 rich pasture acres recovered from the ocean, and protected by artificial mounds or dykes, raised and maintained to restrain the incursion of the tidal waters. This accounts for the hardiness of its sheep. Like those of the Orkney and Shetland Isles, being similarly tempered by gusts from the sea, they require but little food to put them through the winter months, and are consequently very useful animals. Nature has thus provided sheep for the most unlikely spot in the British Isles.

In a country like Scotland, an important portion of the surface of which is mountainous, any useful animal that can maintain itself on these gigantic upheavings, must always be looked upon as a providential boon; and particularly so is the BLACK-FACED sheep of the Highlands of Scotland. These sheep, and the Welsh, are thought to be the nearest the original type of any domesticated breed. In



making comparisons with Lowland sheep they are termed wild; but the scared nature they possess is simply caused by their habitat being seldom visited by the society of the great domesticator, man. Indeed, their nature is to climb as far from him as possible, provided there is the smallest blade of grass or heather on which to keep in life.



THE HIGHLAND BLACKFACED.

By this healthy exercise the Blackfaced is the most active, robust, and hardy sheep in this country—boldly wintering it out when other breeds are dying in more favoured localities. The Blackfaced sheep has a bright and quick eye, which, on the slightest sound of alarm,

darts at the intruder a glance which seems to say, *Nemo me impune lacessit*. His attitude, too, has a dignity in it totally different from that gentleness characteristic of the many breeds that pasture on the richest fare of the lowland counties.

The covering of this breed is in keeping with his life, being open, long, coarse, and shaggy wool, and not much of it—the fleece generally weighing only 3 lbs. Like a “fellow-mortal,” who needs no fuller description, the Blackfaced toils the hardest of his race for his living, yet fares the worst; has to do so in all weathers, yet is sparsely clothed; and, as if to complete the simile, their faces are black—but Nature has many freaks, and this may be one of them. The Blackfaced sheep of both sexes are horned, which horns, both in curve and general appearance, much resemble the wild sheep of Asia already described. Hard fare and rough weather, however, have given the variety one great value in the superior quality of their flesh, there being nothing equal to it in the kingdom. The carcass is always short, round, and firm, though narrow on the back, weighing on an average 60 lbs. The Blackfaced is very prolific, and the hardiness both ewes and lambs possess is most extraordinary. A few minutes after lambing, both will take to the hills as if nothing particular had occurred in their existence.

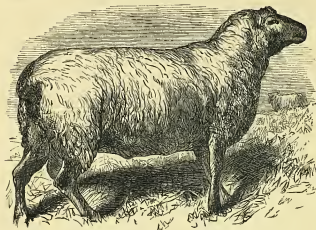
As far as experiments have yet gone, there has

been little improvement made on this breed by crossing; and as with the Cheviot, so with this type—the best plan may yet be found to be to choose the finest rams and ewes of each class wherewith to experiment, care being taken that the unnatural law of close relationship is avoided; for nothing is more clear than that Nature never intended the delicate Leicester or South Down for the locality of the Cheviot or Blackfaced. Judicious selection, and not crossing, has made the Blackfaced what it is, while forced and unnatural crossing has ruined many a sheep farmer.

The English LONK very much resembles the Blackfaced, both as to hardiness and general features, and may yet be of great service in improving the Blackfaced breed, from the superior quality of its wool.

Having described the leading long-woolled sheep of Britain, the short-woolled now come to be noticed; and although by many modern improvements the SOUTH DOWN has been classed as a “middle-woolled breed,” from the prominent place these sheep occupy, and as it is only within the last few years they have attained to that distinction, we will give them the first place of the short-woolled type. Little is known of the early history of the South Down, further than at one time they were black, and derived their name from the *downs*

or chalky hills of Sussex in the south of England. From them have sprung the many varieties that now pasture on the Midland Counties of Britain. Originally they were an ungainly-looking class, being high in the shoulders and loins, with an inferior covering, but now, by great care in crossing, they have assumed quite a handsome appear-



THE SOUTH DOWN.

ance. The old South Down was said to be horned; now, however, they are polled, while their fleece is invariably white, with now and then a black lamb to show their primary colour. Sometimes, too, a horned male may be seen, distinctly showing that at one time the South Down was an undomesti-

cated sheep. In proof of this, one writer asserts that if allowed to go wild, this breed would soon come to its natural black colour, and assume its horns as of old.

While Sussex is the home of the South Down, where the climate is dry, and the soil hard, they have been found to thrive very well, even as far north as the Border counties of Scotland; but most attempts at profitably crossing the pure South Down with the famous Leicester have failed, although a cross with the Cotswold ewe is much thought of by the Hampshire and Shropshire Downs farmers. Recently, however, excellent results have followed from crossing the Shropshire Down with the Leicester, the lambs of which have great weight to their size, and are highly valued by butchers. Pure South Downs are a rather delicate breed, and will not stand, without great care and attention, the climate of our northern counties; but on short commons they show wonderful patience and endurance. In Ireland they have succeeded well. The Farming Society first introduced them into the county of Wicklow, and since then they have found their way into every county. The wool of the South Down is about four inches, and the fleece generally weighs four lbs.; it is short, close-curved, and fine, and free from spiry fibres; but although much improved of late, there is still a brittleness about it

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that the wool-spinner does not like. This more particularly refers to ill-bred sheep, which have always black hair in their fleece. Without this drawback, the wool of the South Down might realise Australian prices. The colour of the wool is regulated by soil, the shortest and finest being produced on chalky ground.

South Down mutton is considered good; it is finely grained and richly flavoured, and occupies the same position in the butcher market in England that the blackfaced does in Scotland, fetching the top price in the London market. This is accounted for from the fact that the Sussex, Surrey, and Kent Downs are covered with a short sweet herbage, which gives to the flesh of its sheep a rich flavour; while the same grass or down turf is the nursery of myriads of small snails, said to be most nourishing food for sheep, and most efficacious for fattening purposes. The ewes are good nurses, and prolific breeders, twins at birth being the rule rather than the exception, and generally speaking they are well adapted for stall-feeding.

The mountain sheep of Wales may also be classed as short-woolled. Somewhat resembling the Aoudad, both in temper and conformation, it is with difficulty that they can be kept within even very high enclosures. The Welsh sheep are the wildest of their class in Britain, and when up amid their native mountains they are not to be

approached without the greatest caution. Restless and migratory in their habits, they are more like the goat than the common sheep, and when affrighted make for the highest peak of their mountains, vaulting rather than running, with an alacrity truly surprising. It has been affirmed that they station sentinels on the highest eminences, that warn the scattered flocks, by giving a shrill bleat on the slightest approach of danger. As may be supposed from the geological aspect of Wales, there are many different breeds of this hardy sheep; but most remarkably has this wild class preserved its distinctive features from that of the frequenters of the lowlands. The Welsh sheep is very small, weighing scarcely above 5 lbs. per quarter, and is only surpassed in this by the Breton sheep, which is the smallest domesticated type of the Ovine race. Their wool weighs about 2 lbs. per fleece, and varies in colour from white to dingy grey, while sometimes a black fleece may be met with.

Few persons are unfamiliar with the use of Welsh flannels, and for this they are indebted to a tamer type of the before-mentioned sheep, the wool of which is so soft as to have given celebrity to the district on which it is reared. These tame Welsh sheep are termed the white-nosed breed, and have heavier, longer, and finer fleeces than their mountain compeers. The importance attached to the

production of such superior clothing stuffs has led to many attempts at improving the stock of these animals; but whether to improve the existing breeds, or to introduce suitable crossing, is a question not yet decided. Our remarks on crossing, given hereafter, from practical experience, may show breeders that in the long run they will find it more profitable to make the best use of the existing improved breeds by paying proper attention to feeding and breeding, than to go on with expensive experiments in attempting to improve the native stock with either the blackfaced or Cheviots, even although success may have been in isolated cases the reward of such attempts. Although these vale sheep have been crossed with both Cotswold and Leicesters, the ultimate gain has scarcely met the outlay. Large sheep are beautiful to behold, but they invariably have wide stomachs, are unprolific, and cannot stand the rigours of severe seasons without an amount of expense and attention that greatly depreciate their value.

The famous CHEVIOT is another class of the short-woolled sheep of Britain, and is certainly the most convenient breed in this country, either for hardiness or easy keep. From time immemorial this breed has existed on the hills from which they take their name—the Cheviots of Scotland. England, however, lays claim to their parentage,

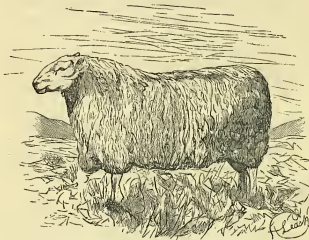


more than one authority asserting that from the highly-farmed county of Northumberland they found their way to the adjoining Scottish hills. Their natural habitat is on low lying hills, but such is their adaptability to change of circumstances that they thrive fairly anywhere, either on the scantiest fare up amid the mountain storms, or on the rich pasturages surrounding our baronial mansions. Severe winters and mountain floods have in some instances over-mastered their hardy constitutions, and forced them to give way to the still harder blackfaced sheep, which for a time they had supplanted, but these are only exceptional cases, and as yet have not been generally acted on. There are many experienced sheepfarmers, however, who maintain that the blackfaced Highlander will eventually push his whitefaced prototype from his native mountains, the reasons for which will be found in Chapter II. on "the Management of Sheep."

The purest and best kinds of Cheviots have a fine open face, with rather lively, prominent eyes; and in every degree of quality the legs are fine, clean, and small-boned. There is a want of depth in the breast of the pure breed, but when crossed with the Leicester there is a fine roundness in its foreparts. As a specimen of this the woodcut on next page represents a first-class prize Cheviot ram, some one of the progenitors of which, at a distant

period, may have been slightly dashed with Leicester blood. This has been proved to be the most profitable kind of woolled sheep for crossing in blackfaced. Twenty years ago it was thought that a sad or close woolled ram was the best, but experience has taught the contrary.

While the colour of the Cheviot is white, the face and legs are sometimes grey, which quality

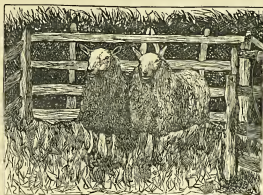


Bred by JOHN MOFFAT, Esq., Craik, near Hawick.  
1st Prize as a two-year-old.

is said to betoken great hardiness. The wool is very fine and short, and thickly covers the entire body, leaving the face clean and smooth, altogether giving the animal a sweet-looking appearance. The fleece generally weighs from 3 to 5 lbs., but

when well managed, is superior to the South Down. A good carcass weighs from 18 to 26 lbs. per quarter. The quality of the mutton is excellent, being very fine-grained and sweet, closely resembling the richness and flavour of the famous Highland blackfaced.

Many crosses with other breeds have of recent years been made in the attempt to improve the Cheviot. About the first of these was with the South Down, which proved a failure, from intro-



Prize Twin Cheviot Ewes, bred by W. MOFFAT, Easter Kinkleith.

ducing a delicacy in the breed unfit to bear the severity of the winter, to which Cheviots must invariably be exposed. An amalgamation with the Leicester, however, gives superior size and weight of wool, and a tendency to fatten more

rapidly, which is an unquestionable desideratum to be obtained on low-lying pasturage farms; but every mixture with strange blood—the black-faced excepted—has been found to effeminate the otherwise hardy Cheviot, and thus deprive it of its distinguishing characteristics.

The Orkney and Shetland Islands have a very peculiar sheep of their own, somewhat smaller still than the Welsh, yet not quite so pigmy as the Breton sheep. On this northern archipelago these fine-woolled sheep were famous before the history of its people was written, and to this day they may be seen in the same condition as centuries ago they scampered over their native bleak moss-covered knolls and hills. Some historians say that the first Danish settlers on these isles must have brought this type of sheep with them; but this, like the origin of most other breeds, is mere conjecture, no direct evidence being led to show that they did not exist prior to even the Danish occupation of the Orcades. The dwarfish size of the cattle, horses, and sheep of Orkney and Shetland, —more particularly those of Shetland—is doubtless the result of one cause, namely, the dry, stunted nature of the pasturage on which they feed. There is no particularity in the breed, but centuries of hard fare have wrought this effect. In corroboration of this, there is a marked difference between the stock of the Orkneys and those of Shetland.

The latter group is the poorest of the two, and its animals are the smallest; and gradually as one travels southward over the Orkneys, or where improved agriculture has changed the face of the soil, there is a vast improvement in the size of all native stock.

This hardy breed of sheep are mostly polled, but when horned they have merely little wrinkled stumps. Their tails, over which they have great control, are particularly short and broad. The leading characteristic, however, of the Orkney and Shetland sheep is, that it can live on sea-weed for a great portion of the winter. During that season of the year they may be seen scattered far out among the rocks, gradually following the sea as it ebbs outwards; and then at the turn of the tide, by a most extraordinary instinct, although their hoofs may not be touched by the incoming tide, they will turn their heads shorewards, picking here and there as they leisurely move onwards before the curling wave. Some of the old inhabitants maintain that there is a worm in the sheep's foot, that at low water begins to move, and thus gives warning to its possessor that danger approaches; but whatever is the cause of this wonderful knowledge, it is a fact that at the very moment of the change of tide these sheep get restless, shake their tails like a torn rag in a breeze, and make for *terra firma*.

In what are called the good old days, the great majority of Orkney and Shetland sheep ran wild all the year till shearing time, when the shepherds with their dogs ranged the hills and drove them together to a fold erected for the purpose. Forty years ago almost every inhabitant of even the towns of these islands possessed sheep; for what was called the "commons" had not at that time been sold to those who could afford to buy them, and thus render the poor still poorer.

A period of great festivity was sheep shearing-day, the schools being even closed for the occasion; and it was no ordinary treat to behold the lively countenances of these northern youths as they pushed forward to hear read "by the oldest inhabitant" the various family marks of the sheep as they were handed to their possessors, the lambs to have their marks put on, and the ewes and rams to have their fleeces either pulled or shorn. This pulling business at the first look does seem cruel, but when the nature of the animal is considered, it is the opposite. These sheep have a double covering of wool and long hair, the former of which, about the beginning of summer, gets detached from the skin, and if let alone rises to the surface of the long hair and falls off, leaving the other coat as a provision against winter. True, the roots of the wool may be injured for the next year's crop, by being pulled; but if shorn, what

would become of these sheep in an early winter, when nature's second covering had also been clipped off? It is a remarkable fact that many of these islanders have observed that a sure sign of an early and rigorous winter was when at sheep-shearing time they found many of their stock with their wool either lost amid the heather or hanging loose on their bodies. From this it will be seen that pulling out the wool and leaving the hair is not so cruel as it appears.

The wool of the Shetland sheep has long been celebrated for its brilliancy and fineness, and at one time was so valuable that a pair of stockings fetched two guineas. It is very soft and silky, so much so that a pair of men's stockings may be made from it so thin that they will pass through a lady's ring.

The little improvement that has been made on these sheep by crossing has come from the Highland Blackfaced and Cheviot breeds, but most particularly from the former. The attempts made to cross them with the Dutch and more delicate sheep have proved failures. The English Lonk seems a likelier cross for this sheep, as it might give larger body and heavier wool, without in any way diminishing the hardy and easily-fed nature of this wiry little animal, whose best quarter seldom weighs more than 9 lbs., and whose fleece is seldom over 2 lbs.

Many other kinds of British sheep might be noticed, but as there is nothing distinctive in their shape or nature worthy of particular mention, the names under which they are bought and sold and a few particulars, may here suffice. There is the Forest Sheep of England, so called from being fed on royal ground, the wool and mutton of which is much in request, at least in the precincts of the court; there is the Dorset Sheep, famous for its being prolific and throwing early lambs into the London market, the ewes having more milk than these can suck, but possessing neither mutton nor wool of much value; and there is the Ryeland Sheep of Herefordshire, a polled little animal, very sweet to the mouth, and not bad for the back of either epicure or dandy.

The sheep of Ireland, also, have now no distinctive feature, being entirely changed by crossing with the Leicester, South Down, and Cheviot, which have been found profitable on all soils not being damp and boggy, but possessing that nutriment which these more delicate sheep must have to secure either weight of mutton or wool. The distinguished Scotsman, Allan Pollok, Esq. of Ronnachan, has set a good and great example in this respect, having to much purpose spent over £1,000,000 sterling, in improving the land and stock of the Green Isle. By a thorough draining of these extensive Irish bogs, an excellent sheep



pasturage might be obtained ; and is it not worthy the consideration of capitalists, and all having an interest in the prosperity of that beautiful country, that if by the outlay of a few millions of money, food and clothing can be got out of what is now almost barren wastes, a great national gain realised, and a contented and happy peasantry the consequence—such an investment should not at once be made, and the name earned of national benefactors ?





## CHAPTER II.

### THEIR MANAGEMENT.

**T**HE management of sheep may be classed under two heads, namely, how best to rear profitably those that are by nature fitted for hill or mountain pasturage, and those fitted for what is termed our low-lying improved lands, or parkage sheep. The principal desideratum to be observed in the case of the first-mentioned class is to pay particular attention that no more stock than the land is properly capable to carry, be placed upon it (as overstocking always leads to disease and death), and that the class of sheep, whether Blackfaced, Cheviot, or Leicester, should be adapted to the grasses or kind of pasture on which they are fed. Care should also be taken that something is known about the soundness of both limb and skin of new sheep about to be introduced into the flock, for many evils are attendant on negligence in a proper selection.

An experience of thirty years in the southern

counties of Scotland and the Western Highlands, has forced us to the conclusion (although at one time we held a different opinion) that in nine cases out of ten it would be more profitable to retain the Blackfaced or Highland breed on all our high-lying districts, than to attempt to supplant them by crosses even from the most likely breeds. This opinion has been arrived at after crossing in stock, and perfecting them, on land in the West Highlands, apparently fitted to carry the best class of Cheviots.

The natural instinct of the Blackfaced sheep, their daring and agility, enable them to endure more fatigue than any other class. They do not fetch the same money value in the market as the Cheviot—although the difference is but trifling on the sheep and lamb; but the principal drawback lies in the inferiority of their wool. This, however, is counterbalanced by their greater hardiness, and the ease with which they support themselves on pastures where Cheviots would starve. The same ground that would maintain 800 Cheviots would give ample support for 1000 Blackfaced sheep. It is therefore evident that the Highland stock-farmer will at no distant period find it to his advantage to fully develop the native stock by crossing it with superior breeds of Blackfaced sheep.

The system of crossing we adopted was to use the best bred Cheviot tups that were to be had on

the Borders, and it was found preferable, after various experiments, to use the long, open woolled sheep rather than the sad-skinned one. Although it may appear anomalous that the Blackfaced sheep, being itself open woolled, should be more improved, and give a heavier fleece by being crossed with an open-woolled Cheviot sheep, it is nevertheless the case, for experience has decided that the continued use of the sad-skinned sheep gives shorter wool, a lighter fleece, and that in many cases considerably coated. What is also of much importance in crossing, is that tups should never be used more than two seasons on the same hirsels; and that should a farm consist of not more than one hirsels, it would be better to dispose of the tups than to use them again. With sheep as with human beings, a degenerate stock is ever the consequence of a too close relationship. To keep the connection as far removed as possible, it is necessary on a one-hirsels farm to use say Bryden's tups for the first two years, Aitchison's for the second, Moffat's for the third, Elliot's for the fourth, and Oliver's for the fifth two years, thus filling up the period when relationship ceases.\* By thus mixing the blood the stock gradually become larger and hardier, their wool superior, and their mutton firmer and sweeter.

\* The above breeders' names are merely given by way of illustration, and not for the purpose of invidious distinction.

The same remarks as to crossing may apply to all classes of sheep, whether it be crossing with a pure type, or say a Leicester from Leicestershire with a Border or other Leicester. Such a cross is more calculated to give health, strength, and vigour than to use a ram from a neighbouring breeder, that may turn out to be blood-related, though distant.

In hill sheep farming the first thing to be attended to is drainage, which is generally done by open ditches, or what is called sheep drains. By this process of drying the soil there is a great amount of valuable pasture land wasted; and the only thing that can be said in its favour is its cheapness and easy adaptability to the most inaccessible places in the highest hills. There cannot be a doubt, however, that in the end it would be more profitable for both landlord and tenant to tile-drain all the deep bogs and strathlands of our highland sheep farms; for by this process the surface would be kept level, and four feet of grass saved, while the extra amount of stock fed thereon would more than compensate for the additional expense of these drains, besides obviating the danger of sheep being lost in open ditches, which, through the course of time, by the force of mountain spates, are made into dangerous sheepfalls.

On exposed lands shelter is almost as much required as food. Too little attention has hitherto

been paid to this most important necessity in sheep culture; for there is seldom a severe season in which numberless instances are not recorded of the wholesale destruction of ill-cared for flocks. This word is used advisedly, because if landed proprietors would erect in proper situations a number of shelters having four sides inward crescent shaped, of sufficient size to contain a plantation to fully shelter each of the four sides, any one of which should be large enough to accommodate and give space for hay to the cut that pasture near it,—such a charge could not be made. To complete this arrangement, a field should be taken in of say five or six acres, to grow sufficient turnips to maintain the sheep during stormy weather.

One of the most prominent hindrances to the prosperity of the hill sheep farmer is the disease which has been named “braxy,” and is well known to sheep farmers to be nothing else than inflammation. As it is impossible on a wide hill to observe sheep in proper time when attacked with this trouble, the use of medicine invariably comes too late to do any good; and the consequence is, that the sheep farmer, rather than go to the expense of applying the only real preventative, namely, change of pasture, allows his stock to remain where they took the disease, and suffers the loss. Now, on almost all farms, even the most isolated or high-lying, there are always tracts of

land suited to the growth of turnips, which only require to be fenced in and cultivated to grow this root. Of course, it is not thought that hill-sheep could be fully fed on turnips; but one feed per day would completely prevent and put a stop to this disease, which kills more sheep annually than all the country has lost by rinderpest for the last thirty years. This brings forward the question of compensation, so recently acted on by our legislators, that if one portion of the community having stock dying by a disease for which there is a remedy, gets compensation, why should not the other be similarly treated, when, having remedies before them, they refuse to adopt them? There is no doubt that there is a preventative for every disease, not only in sheep and cattle, but also in grouse. A short account of our experience of this during the grouse disease, although out of place, may be useful, as showing that what was done to prevent rot in sheep, effectually prevented the grouse from becoming liable to the disease prevalent about twenty-four years ago.

The farm on which this was done was situated in the midst of three large estates on which the game were strictly preserved, and the heather not allowed to be properly burned. It was principally composed of lea heather, flow, and moss. A large quantity of the heather had become too old and strong, but having the privilege to burn the same

to our satisfaction, we accordingly did so, just a few years before the fatal grouse disease broke out. The process of burning was as follows :—At least three-fourths of the old worthless heather was set on fire the first year, the marshy and damp portions of the farm dried by sheep drains, the burns cut and water-dykes put up to prevent the overflow of the banks, *which overflow causes the rot* in sheep, and, from what follows, apparently also the disease in grouse. The old heather having no nutriment in it for sheep, neither could it have for grouse ; and to this may be attributed the healthy state of the grouse on that farm, not one of which died from the surrounding epidemic, they having had an abundant and fresh supply of succulent food from the new heather growth of the previous year's burning. The same operation was continued for the next two years, patch after patch being burned, until the entire farm had been gone over, care being always taken to leave untouched all the sunny dry patches surrounding old quarries, and the dry knolls for hatching purposes. The consequence was that there was not a healthier stock of sheep or grouse in any of the adjoining properties, and, what may seem stranger still, although there was a great increase of grouse both bred on and coming from other properties, the damage done by them to the stock on the farm was absolutely none.



Turnips being of such importance in the prevention of disease in sheep, as well as for fattening purposes, a few remarks might here not be out of place on the best way to economise that valuable saccharine root. Before frost sets in, turnips should always be pulled, have their shaws taken off, and then stored in small pits in the fields whereon they were grown, provided, of course, such fields are dry. Out of these pits they should only be lifted when required to be cut up and put in boxes for immediate use. By this means there can be no waste, while the sheep feed much faster than when netted on and allowed to eat the growing turnips. If put on a new brake, at the commencement of the season, while the shaws of the turnips are green and frosted, sheep are very apt to be seized with inflammation in the bowels; but, as a matter of course, although turnips are pitted, the sheep nevertheless require to be netted on the field in brakes, to prevent them from scraping the earth off the pits, and thus destroying more than they eat, by exposing the whole turnips to the action of frost, and the broken ones to both frost and air, which alike work to the damage of the stockman.

When turnips are grown on a stiff, clayey soil, although they may be pitted on the same field, it is always advisable to cart them off that quality of ground to a dry lea field, where they should be given to the sheep in boxes. The most economical

apparatus for this purpose is the longitudinal turnip cutting cart. Into it the turnips can be put in the field on which they are grown, for the machine is so constructed as to be thrown out of gear when required for carting purposes, and by the simple touch of a side handle, set a-cutting at the proper time and place. Above the cutting knife is placed a board, which forms part of the bottom of the cart, and prevents the turnips from falling into the machine until they require to be cut. Another advantage of this machine is, that it cuts the turnips either to fall into two rows or into a box or drawer, placed below the cutter at the end of the cart. The troughs being placed apart at proper distances, the drawer or box gets filled while going from the one to the other, and thus saves the labour and expense of hand cutting. While, however, turnips are so valuable a corrective, there is a possibility of their doing harm if too often given without the assistance of hay to counterbalance their watery effects.

To bring sheep to maturity as fast as possible, a quantity of cake and corn should be given them at least once a day; but great care should be taken not to keep them too much to one description of food, as the very nature of the sheep is to consume a greater variety of plants than any other domesticated animal. Linnæus, experimenting thereon, found that horses rejected 212 kinds of plants, and

ate 262; cattle refused 218 species, and ate 276; while sheep only rejected 141 kinds of plants or grasses, and ate 387. Other authorities go still further in their deductions from experiments, and assert that no animal can be in a healthy state if kept on one kind of food for more than six weeks. If such is the case, need it be a matter of wonder, that our butcher meat is every day getting scarcer, when many breeders of stock regard not such scientific warnings, keeping the poor brutes for months together on turnips and nothing else, and will not even shift their flocks, until disease and death stares them in the face?—when, however, they fail not to set up a cry about rinderpest, and a demand for compensation!

Equally applicable to hill and parkage sheep is proper attention to their wants during the autumn months. No doubt it is no easy matter; but upon it depends the flockmaster's prosperity or adversity when the spring comes round—his good treatment of his flock producing fine-conditioned sheep, and plenty of strong and heavy lambs, and his negligence at that season giving the opposite results. Much has been written to teach the sheep farmer this lesson, that ewes should be put into good condition before breeding time by careful feeding for a few weeks; but to us this seems both an expensive and a questionable method of obtaining the desired object above alluded to. A

moderate amount of good food is indispensable ; but to be fed entirely on either the best of grass or turnips is unnatural, and cannot therefore give the invigorating powers attributed to such feeding. Comfortable shelter, a dry resting place, change of food, and healthy exercise to obtain a portion of it, and not a plethora of either, is the most natural treatment to obtain that vigorous fulness of blood and firmness of muscle necessary for the production of strong and healthy lambs. It is strange that what is found indispensable for maintaining a vigorous and healthy human race, should be set aside when the brute creation is to be acted upon. Grass in autumn is often far from being good, and at best is not so nutritious then as in either spring or summer, therefore should not be over-indulged in ; and turnips at the early portion of the same season have neither that firmness nor richness which they afterwards acquire, and should consequently be carefully given to either ewes or tups at this critical period. It is true that sheep take on fat more rapidly when kept at rest and fed under shelter ; but fat mutton and good breeding are two different things, and ought to be considered separately—the one as giving a nice cut to the butcher when it is required, and the other as producing lambs that drop into the shepherd's hands like a lump of lead, and instantly thereafter start at a steady trot after their dam.

The natural instinct of the sheep causing it always to prefer a hard dry ground to lie upon, might at once teach breeders that such resting places should be provided for their flocks, and not soft, strawy, or yielding surfaces. To secure this for hill sheep, all shelters should be somewhat high and dry; while for lowland sheep the floors of the sheds and yards should be asphalted, paved, or otherwise rendered hard. By this mode of securing natural comfort for sheep, their manure might be saved without much trouble; while, if conveniently situated for pasturage, that healthy exercise necessary for good breeding purposes might likewise be obtained.

In low-country sheep-farming few rules can be laid down that will admit of anything like general application, owing to the variety of sheep of that class, and the various natures of pastures and food necessary for each kind and locality. Our previous remarks on selection, feeding, and shelter are applicable to every class of sheep. A few facts, however, based upon experience, may be given, as to breeding and some of the more prominent diseases more particularly affecting low-country sheep. The breeding season generally begins early in October, and a ewe eighteen months old is sufficiently matured to be put to the tup. During pregnancy, which extends over a period of about twenty-two weeks, great care should be taken of

ewes, but especially during the first and last six weeks of that period. Shortly before lambing-time ewes should be kept as quiet as possible, on a restricted diet, as over exertion and fatness combined frequently lead to abortion; and even after lambing there is no necessity for much nutritive food, as ewes neither seek nor require it. When ewes are lambed on a turnip field anxious watchfulness is required to remove both mothers and lambs, at the earliest possible moment, to a young grass field. The same should also be done in the case of folded lambing. Five or six days after birth, the operation of castration should be performed; but as to the time of weaning there can be no period fixed, as that must depend on the pasturage. On a good rich soil, lambs may be weaned at about four months old; but if set aside for store condition they should not be weaned for two months longer. If pasturing on a poor soil, lambs should not be allowed suck after three months, as longer nursing stunts their growth and impoverishes their mother's blood. Between forty and fifty ewes may be admitted to one shearling, and a greater number to older rams.

The time for clipping should be regulated by the condition of the fleece, care being taken that the shears are not used until the new coat of wool is clearly seen above the skin; but before shearing is commenced, attention should be paid to the

cleanliness of the fleece. If necessary, the flock should be thoroughly washed, and thereafter kept on a clean pasture, otherwise the wool will be greatly deteriorated in value. Male sheep should always be first shorn.

Since the foregoing was written, we have received the following letter, in answer to some queries, from a gentleman in Mid-Lothian, whose experience is second to none in the county; and as it corroborates some of the foregoing remarks, and may be of use to others, we will give it in its entirety:

"I do not think that I can give you anything new in the management of bred ewes—just the old thing over again;—but will simply let you know how we get on here with 140 bred ewes, the keeping of which has been very trying to us during the last three seasons in this dry part of the country.

"In the first place we draft out in September the aged, delicate, or those that may be deficient in wool, which we dispose of to the butcher. If good breeding ewes, we are not particular as to their age, for we have them occasionally as old as eight or nine years. What is intended for stock we then put on clean, fresh pasture; and, if that is not to be had, we give them turnips on the grass. By the end of the month or 1st of October we put the tups to them, selected from the best blood we can get, well covered all round with good Leicester wool, with fine bone, etc., etc. Our tups have almost all been selected from the Mertoun flock for the last fifteen years. We next select the ewes that will suit the different tups that we have got for them, and put them into separate fields. One tup can easily serve sixty ewes if necessary, but he will last all the longer if moderately wrought the first year, or when a shearling. When the tups are removed from the ewes, if the pastures are rough, tur-

nips may be dispensed with for a time, but by the middle or end of December they will require a few laid down to them each day, and these increased as the season goes on, to as many as they can eat in February, with as much good hay as they can eat all the winter, cut into chaff with a chaff-cutter, and put into boxes. I think a part of hay is better for ewes than too many turnips, and if these are not plentiful, a few bruised oats and bran mixed with the cut hay is a good substitute for them. We cut all our turnips for our ewes with a turnip-cutting cart, and lay them down upon the grass. The old ewes get their share as well as the young ones. When the lambs are two or three weeks old they are put upon young grass, with a few turnips or oats given to them daily.

"We generally clip our ewes about the 1st of June, but much depends upon the weather and the condition of the ewes as to the time of clipping. By the end of July we take the lambs from the ewes, and at the same time we dip both ewes and lambs, which is the means of keeping the flies from blowing them in warm soft weather, that being the only time we dip them. The lambs are then removed to hay stubble, or second crop, if it is to be got; from that to young grass after the grain is removed from the ground, and from that to turnips, always keeping them in fresh meat. Thereafter we separate the tups from the ewe lambs, and in December we commence giving the tup lambs a little cake and bruised oats, and continue to increase the quantity as the season goes on. If we have turnips we do not give the ewe lambs any artificial feeding.

"Our hogs we clip about the 1st of May, and then draw out the best of the tup hogs for breeding purposes, and sell them in September at the Edinburgh tup sales. The others we sell to the butcher. In September we select a sufficient number of the ewe hogs to keep up the cast of ewes that we have drawn out, and we either sell the remainder for breeding, or to the butcher, but the latter we prefer."

One cause of immense loss, particularly to low-



land stock-farmers, is that disease now termed dry-rot. Although not very prevalent, when it does appear, great destruction follows, as but little is yet generally known about its cause and cure. This trouble invariably breaks out on low cultivated lands, which have been eaten very bare with either sheep or cattle during a dry summer, when, of course, the turnip crop is sure to be a bad one, and to have become mildewed and deprived of that substance which a summer of sunshine and shower gives them. After such a summer, it usually happens that an excess of moisture follows, with a low humid atmosphere, such as occurred in this country about twenty-six years ago, when large numbers of park sheep either died or were sent to the market to be slaughtered. At that time the cause of the death of these sheep was not known. They died in good condition, but without a drop of blood in their bodies. No fluke was found in the liver, and therefore the trouble was named *dry rot*, in contradistinction to the disease called "rot," which is always attended with the presence of parasites called flukes, from their resemblance to the fish of that name.

The ruinous loss sustained by many farmers at that time created quite a panic, and we resolved to make a thorough investigation into the feeding and attention which these sheep had previously been subjected to. The result of these investiga-

tions are as follows: As before stated, the summer was a dry one, and turnips both scarce and bad; the corn and hay crop was also a short one; and to economise turnips as much as possible the sheep were allowed to eat the grass which remained green from November till February. By so doing the poor brutes were forced to eat their death from what to them was a sort of poison or famine in disguise, there being no real substance in such an unnatural growth of grass, every blade of which was covered with a fine imperceptible sand. When their stomachs were examined, considerable quantities of water were found therein, being mixed with sand, thus clearly showing that the sheep had died from starvation. There was doubtless some nourishment in the grass, probably enough to sustain life; but the sandy particles had got so embedded in the coatings of the stomach that the powers of digestion had been overmastered, and what was of service to the sheep had passed through them without ever yielding one drop of blood to sustain life.

From that time, up till March 1866, we had not observed the same disease. Then, however, it again broke out, and this time on the farm of Cults in Fifeshire, and was reported by the local veterinary surgeon, and Professor Strangeways, of Edinburgh, to be nothing else than rinderpest. This lot of sheep we examined, and at once declared that they

had died of dry-rot, and gave proof to show that it was so. These sheep had been subjected to the treatment above referred to, and had died by eating unwholesome grass. During the whole of February and a part of March, although the ground on which they pastured was covered with frozen snow, the unlucky brutes had received no other food than what they there had picked up; and rinderpest was conveniently saddled with the cause of death, while starvation alone did the deed.

Just about the same period a number of hogs died from "braxy," and a few from "breakseugh," and a fresh set of eminent authorities also declared the cause of their death to be rinderpest. Those sheep that died from breakseugh composed a flock of some two thousand that were then feeding on a small patch of low-lying ground on the banks of the Thames. This pasturage was so overstocked, that in a very short time it became foul, and disease followed. First, they seemed to have lost their bellies, then their eyes got watery, and thereafter the mucous matter that passed from them had the colour of pitch, with a most offensive smell. Now, we assert, without fear of contradiction, that not one of these sheep would have died of such a disease, although the ground on which they fed was much overstocked, if a clean pasture had been given them every fourteen days or so.

"Trembling," or "loup-ill," is another peculiar disease that is a great source of annoyance to stock-farmers. In the month of May its ravages are sometimes extraordinary, especially among lambs pasturing on ground exposed to the east wind. The nature or exact cause of this disease is not easily explained; and but few that are seized with it ever get entirely better. From their staggering gait, and their excessive kicking when they tumble down (which they frequently do), the disease shows symptoms that might be said to proceed from some affection of the spinal cord or brain. In the Hebrides this trouble begins about the middle of May and ends in the beginning of June; but a second attack is frequently made by it in September, should there be a prevalence of easterly winds. As the time of this disease is so fixed, and as it may proceed from the cold chill that is ever latent in east winds, it might at least be conjectured that proper care and shelter would obviate, if not entirely put an end to, losses from its inroads.

"Foot and mouth disease" and "murrain" are now become so general that little may be said concerning them farther than that they are believed to be contagious. The former first broke out in the south-east of England, and thereafter rapidly spread over the entire country; but now this epidemic is on the decline, and seems gradually to be

losing its severity, so much so that careful nursing is all that is required. Murrain, however, is still prevalent; but as its cure is so easily obtained, no lengthened description of its early symptoms may be required, further than that it is an inflammation of the skin connected with the hoof, involving the parts connecting the sensitive with the insensible sole. One application of Reid's Sheep Dip effectually cures this disease.

"Sturdy" again, is entirely a head disease, and is well known to stocksmen. It is evidently an accumulation of fluid on the brain. When affected with this disease sheep have a dull, stupid look, often whirling around; and, should water be at hand, they will go up to it, stand staring at its glassy surface for a time, and then, getting giddy and confused, will fall in. The variety of this disease, caused by the insect hydatids, can only be prevented by the use of dry, well-grown, wholesome food; but water in the head, resulting from exposure to chills and showers, may be treated in various ways. One way is to put a wire up the nostrils, which breaks the blobe of water, but does not entirely eradicate the disease; another is to insert a probe into the soft part of the forehead and pump out the fluid; but the most effectual cure we have adopted, when the disease is so developed as to show a distinct soft part on the skull, was to cut, with a sharp knife or lance, a small tongue,

lift that up, hold it back, turn up the sheep's head until the blobe protrudes, and then gently remove it with a pair of forceps. By this means the evil is entirely eradicated, for not only is the water taken away, but likewise the water bag and the parasites that are in it. When then this mode of treatment is properly performed the cure is effectual.

As the sheep is the most liable to disease of all our domesticated animals, caused doubtless by the wide range of plants they can live upon, those already mentioned are but a tithe of their troubles; but as such distempers as swelled joints, legs, and heads, yellowesses, black leg, thorterill, and others, are invariably caused by cold, damp, and sheer neglect, no description of them is needed. Even when they do occur they cannot be perceived in proper time for the application of either surgery or medicine; and as none of them, with the exception of murrain, are contagious, the infliction must be borne in silence, much as a delinquent bows his head to the just sentence of the judge.

Braxy, already noticed, as far as our experience goes, is the most deadly enemy to the flockmaster. It is principally hogs that are subject to it, about the time when the first hoar-frost appears. Out of a flock of 400 we have often seen as many as ten die in one night, and thereafter, until they were removed to a field of turnips about twelve

miles distant, they might die at the same rate. A few died on the road thither that had previously got the disease, but not one of them after they had landed on the turnips, thus showing that nature has supplied an antidote to save us, as it were, from partial famine, until science and experience has taught us how to act towards those necessities of life a bountiful Providence has created for our use. Truly the master poet has said that there are—

“Books in the running brooks,  
Sermons in stones,  
And good in everything.”

It is a matter of wonder, when all the diseases are gone over in detail, that there is such an animal in existence as the sheep. But this is not all. These poor brutes are further liable to skin diseases, of the most irritating kind; and, after that, are subject to the torture of blood-sucking parasites. Prominent among the skin affections is what is termed “scab,” both as to its frequency, generality, and universality. As to its origin, it seems to be contemporary with the sheep itself; and has been defined as springing from the existence of a microscopic insect of the class acari, which make their way into the skin, and become the inhabitants of pimples and pustules. Like the human skin affection “itch,” it is very contagious, and is looked upon by flockmasters with as much

abhorrence as we look upon one of ourselves, unfortunate enough to have been inoculated with the human acari.

Most injurious to the general welfare of the sheep is this scab; it spoils both wool and flesh, and so irritates, that feeding and general health are impaired. Worse still, it spreads rapidly, attacks the young lamb equally with the old ram or dam, and may find its way into the best managed flocks; but as the symptoms are discernible at a glance by any practical shepherd, and may be readily checked and eradicated, little sympathy is generally shown towards the proprietor of scab-affected sheep. The premonitory symptoms are what is termed "flowering," being caused by the affected sheep pulling the fibres of the wool until a white spot is created. Shortly thereafter the animal becomes very restless, and takes to whatever is nearest on which to rub itself. Large patches of scab are thus created, from which the wool either falls or is torn off; and no amount of care by feeding will do any good, but rather aggravates the disease.

It has often been asserted that scab is simply an infectious disease. This is another fallacy propounded by men of science without experience. Scab in sheep, like many other diseases, is brought on in several ways other than by infection. Bringing sheep together in high lands in large numbers,



for the purpose of either gathering, clipping, dipping, or anything else, when not carefully done, is apt to cause overheating, which, unless looked to at once, is sure to end in scab. Such sheep may be as free of scab before gathering, as the great Assyrian was after his three dips in Jordan; but after this stewing process many of them may be affected with scab, and thereafter taint every one with which they come in contact, directly or indirectly. Lean sheep are most liable to scab when removed from poor soil to rich pasture, and, like the lean kine in Pharaoh's dream, will soon devour the fat sheep. Driving sheep day after day to distant markets for any length of time, will also bring on scab if they are allowed to get frequently overheated. The risk of this abominable disease (and many others) being continued by railway transit, will soon be obviated, as the law is now in force compelling railway companies to provide accommodation for both feeding and watering sheep and cattle while on long journeys, and thus securing the inhabitants of large cities against eating infected food, and the refuse of the dead meat market.

Several writers of authority maintain that the appearance of scab is regulated by the seasons, but in all our experience we have seen very little difference in either the actions of the sheep when affected, or the colour of the scab, whether the

weather was cold or hot. The skin is always hard to the touch, the sheep is most uneasy, and it will even bite any one touching the affected part, while at no other time will it act so ferociously, however sorely tried. General as this disease is, it is a matter of consolation that it can easily be cured if taken at an early stage. Many remedies are offered for this purpose; but care should be taken that powerful dips or poisonous ones do not, while killing the insect, either spoil the yolk of the wool, or kill the animal.

Besides this parasite, scientifically named *Scarcoptes Ovis* or *Scab Acari*, there are four others, of a lesser degree offensive, yet still very injurious to the flockmaster's interests. Each of them breeds with extraordinary rapidity, and the fleetness of their motions among the wool of the sheep, enable them to extend their family connections to an entire flock in the shortest possible time. The maggot is probably the most offensive of the four, for no sooner is there the slightest break of the sheep's skin than down drops the blowfly and deposits its eggs. The locality is most favourable for hasty incubation, warmth and putrescent matter favouring the development of the *larvæ*; and so the progeny of the blowfly spreads like wildfire. These maggots are more powerful than most people would imagine, for they will make their way into the flesh, and even through the whole skin;

thus opening up large and deep wounds that greatly injure the carcass, while inflicting the most excruciating pain upon the affected brute, which not infrequently ends in death. Horned sheep are ever fond of butting each other, for amusement or revenge, and thus render themselves very liable to the descent of their wily enemy; while sheep affected with diarrhoea or looseness, are certain victims, from the filth accumulating about their tails being adhesive enough to hold the easily hatched eggs, unless dipping be at once applied, and that of such a kind as to completely kill them.

An irritating little bloodsucker is the *Ixodes Reticulatus*, called tick, fag, cad, etc., in different localities; for, having a strong proboscis, it inserts the same in the most sensitive parts of the sheep's skin, and thereby causes great irritation to the animal. Such is its strength and the sharpness of the lancet by which it lives, that it can make the sheep play the most fantastic antics, amusing enough to the beholder, but certainly not to the performer.

Smaller still than the tick is the *Melophagus Ovinus*, or red louse, so named from the colour of its body. It is also provided with a sharp beak for bloodsucking, and when so engaged does so vigorously, as if preparing for a long fast. That it can exist for a lengthened period without food is notorious, for it has been found alive in the

shorn fleece twelve months after the fleece was removed from the sheep. The matter this insect throws off is very injurious to wool, as it leaves a stain not easily removed. Early dipping, again, with proper stuff, readily puts an end to this pest to the sheep and its owner.

As the common sheep-louse, by scientific men named with the entire alphabet of twenty-six letters, only appears by neglect or starvation, little need be said about it, farther than that the stock-master who, having the means at his disposal, and yet withholds it, allows his animals to be infected by it, deserves the loss, and a night's lodgings in the midst of them.

Now, there is no doubt that all these troubles, scab included, can be cured at once when perceived; but may it not be worthy the attention of Agricultural Societies to set on foot investigations that might lead to the discovery of a *preventative*. Fumigation, for instance, periodically performed, has been established as an invaluable antidote in many cattle diseases; and may there not be either a mineral or vegetable substance, which, if judiciously used, along with the diet, would so act upon the entire system of the sheep as to prevent any one of these irritating diseases? The discoverer of such a remedy would deservedly earn a monument as one of the greatest benefactors of the human race.

Various opinions are promulgated as to the

superior efficacy of dipping, pouring, or smearing sheep, for the purpose of destroying parasites ; but there can be no doubt that the former is the best, as by it the most complete cleansing is obtained. Even in the Highlands, where old systems are much adhered to, pouring is almost entirely abolished, while smearing is rapidly disappearing and giving place to the effectual dipping process. The old tub, while very handy, is also now being supplanted by the improved bath, which, if only made roomy enough, would be perfect. The bath



is made to fit into two pens large enough to hold say twenty-four sheep. The pens should be set on an inclined plane ascending from the bath. The

bath is so placed as to lead to each of the pens by a swing gate which shuts to either side; and thus while the one pen is being filled up by the sheep to dreep after they are put through the bath, the other contains dry ones, which are yet to be put through the dipping tank. The expense of this apparatus is but trifling, and no extensive sheep farmer should want it. By its use much time and labour is saved, and if a proper dip is applied, the original cost of either will soon be met by the value received for finer fleeces and healthier sheep, not to speak of the comfort given to the animals by this thorough cleansing process.

As we are the manufacturers of a dip, no vague assertion will here be made as to the superiority of it above others in the market. It shall be allowed to rest upon what others say of it. Taking for granted that we believe ours to be the best, it shall not be advertised after the manner of prize essayists in farming journals, but shall be put before the public in the proper place and manner. Few men have the experience judiciously to affirm that out of a great variety of dips one or two stand pre-eminent, for it is impossible that a single individual can have sufficiently tested more than a few of these varieties. Nay, further, the dip that was not up to the mark one year, might be so improved the next as to be almost perfect. An

assertion like the following, therefore, although it may be true enough, is especially injudicious when printed in a class journal :—

“An infinite variety of proprietary and patent dips are now finding their way into the market. Some of these are really good, some indifferent, and others absolutely bad. Amongst those which occupy the first place are Cooper's, M'Dougall's, “The Glycerine,” “The Tanfield,” Bigg's, Rome's, Reid's, and Rawden's. These we may divide into two classes, viz., poisonous and non-poisonous. Of the former, Cooper's and Bigg's, in our opinion, stand first in order of merit ; and of the latter, M'Dougall's and “The Glycerine.” These are all first-class dips, and if the necessary instructions be attended to, will not fail to give satisfaction.

“We believe Cooper's to be the longest established and cheapest, and also the most extensively used. As shown by the railway books, it appears no less than 1200 dozen packages, or enough to dip 288,000 sheep, is sent out weekly. It is used extensively on the Continent and in the colonies, accompanied by “directions for use,” printed in many languages. As a summer and autumn dip, we consider it second to none, and have always used it. Its cheapness and extreme solubility in cold water particularly recommend it for these purposes.

It is not easy for one to keep his gravity when reading this “puff direct.” First, there is “an infinite variety of dips,” good, bad, and indifferent ; second, Cooper's stands first ; and third, “we have *always* used it,” and can therefore assert that it is the best. Further comment on this is unnecessary, for if a person has always used one kind of dip, he cannot know by experience that “an infinite variety” is bad.

Stocksmen, in general, look rather closely at the first cost of the material for preparing sheep for winter. It is well known that sheep can be dipped at the cost of  $\frac{1}{2}$ d. per head with a preparation of arsenic; but it is probably not so well known that such a dip is more calculated to diminish the weight of the wool than to add to it, by removing the natural yolk which is always found on the skin and in the wool of healthy sheep. When such yolk or grease is removed at the season of the year when sheep are generally prepared for winter, especially hill stocks, it does not again return to the same extent that season. Sheep are thus left more unprotected than they were before dipping was performed, while the vermin after all may not be entirely eradicated.

In using vegetable oil baths, it is most profitable to shed and pour in the mixture, which process always gives a larger percentage of wool than by dipping wholly in a solution of arsenic. A carefully prepared dip, used as already described, is all that is required to preserve sheep in good order throughout the winter. It will promote the growth of the wool without injuring its colour, and at the same time keep the sheep warm during inclement weather. Such a dip is therefore an excellent substitute for the hurtful and expensive tar and butter smear, which we are glad to observe



few stock owners are now using, and are thankful for the discovery of any good dip.

A pretty general practice prevails of dipping lambs when weaned, and again to go over the whole stock when the last drafts go out; but the white smear, if a smear is used at all, should always be used thereafter for a winter coating. When no smear has been used it is advisable to dip young sheep again about the end of January on low grounds, and on high-lying pasturage about the beginning of March. This keeps them free from all kinds of vermin, improves their condition, and vastly increases the weight of the fleece and mutton, by allowing them to rest quietly at their bare and scanty pasture.

It is of much importance in the proper management of the fleece, to pay strict attention to the ingredients used in bathing sheep. Such a preparation should always leave the wool, when washed, of a pure white colour, and of a glossy texture. Non-attention to this most particular part of the flockmaster's duty often results in inferior prices being obtained when such wools come to the market.

Rolling up the fleece properly is also of much importance. This part of the work is too often done in a hurried and slovenly manner, which gives the consumer a large amount of additional trouble in separating the fleece into proper parts

(or sorts), all of which detracts from its value to the grower, as the additional price that could have been given for well managed wool, must be paid by the manufacturer in shape of labour.

Although there are heavy penalties enforced under the Wool Winding Act, it is nevertheless often evaded, as we have frequently seen balls of worthless matted wool turned out of an apparently well-rolled fleece. It may be well to remind wool-winders that this Act is still in force, as many careless workmen find to their cost each wool season in England. This Act distinctly lays down that no winder is to secrete detached portions that may be lying on the ground where clipping was performed; and the buyer of any ill-rolled fleece containing anything but pure wool, may proceed at law against the seller and recover drawbacks, or enforce penalties. But this special legislation, while it may reach our home wool-growers, is too often paid no attention to in the colonies. Many warnings have been given to our Australian brothers on this subject, as the frequency with which their clips abound in filthy matter, amply provoke. As yet, however, these remonstrances have had little effect; but the day may soon arrive when such dealings will prove fatal to not a few Australian exporters. A good name is worth having in this as in other trades, and, when a glut in the market takes place, may save its possessor from ruin.

The best way to secure a clean, well rolled-up fleece, is to have a sparred frame of a proper size placed about eighteen inches from the ground, with one or more persons to do the work, according to the number of hands employed in shearing. The use of having a sparred frame instead of a close boarded one, is to allow all sand, etc., to fall out of the fleece freely when in process of rolling.

Packing should go on at the same time, to keep the natural gloss on the wool. This can easily be managed by the use of a long pole, laid on a couple of triangles made of three sticks each, and tied at the upper end. On this the stretched sheets should be suspended. Thus packing can be proceeded with quietly and in order, and the completion of the shearing operation be arrived at, ere the daylight passes away.





## CHAPTER III.

### THEIR NATIONAL VALUE.

THE word "value," when applied to the sheep, otherwise than as a commercial expression, is a misnomer; for that animal has been invaluable to man ever since he had a being. No matter what his degree may be—a king or a beggar—he has to wrap himself in the old clothes of the sheep; and he may consider himself a fortunate fellow—at the present time, at least—if he can daily sit down to a good gigot. Such being the great importance of this animal, it cannot be unworthy even the consideration of statesmen to have it popularised; and he will earn for himself an undying reputation who shall snap asunder the link that now debars an ill-clothed and underfed nation from increasing the supply of such necessities as wool and mutton. The subject is one of national importance, before which individual interests must give way. During times of peace and prosperity no one is called

upon to make sacrifices ; but when war or famine become imminent, life and property ought to be ungrudgingly given. And when the fact stares us in the face that our supplies of British wool and mutton are not keeping pace with the growth of the nation, it is time that every inch of pasture-land used for the especial pleasure of the few should be laid open to the wants of the many. Just a hundred years ago, we had only about eight million sheep fewer than we have at the present day. Thus, while the population of Great Britain has been more than doubled, we have only increased our mutton and wool supply about one-sixth. No wonder, then, that famine prices are being established. Wealth, that ought to have been to us a blessing, has thus become a curse ; for by it the soil adapted by nature to supply us with this national necessity, has been set aside to nurse the playthings of its possessors. As Mrs Malaprop would say, "Deer, deer, this is awful !"

This is not a question of landlord and tenant merely, but one of national importance, and, as such, must be taken up and acted upon by the public. A man may not deface her Majesty's coin without liability to punishment, even although he has earned it by the sweat of his brow ; neither should a man be allowed to prostitute the soil—the source of our existence as a nation—with impunity. The "greater good to the greater num-

ber" was once the motto of a great political party. Now-a-days, however, it is read with the same nerveless curiosity as one reads the inscription on an old Roman coin. Surely it does not require, in this age of enlightenment, the report of agrarian blunderbusses to startle statesmen into seeing that motto as of yore. It has been read earnestly, and religious disabilities vanished; it was uttered solemnly, and the slave dropped his fetters; it was shouted menacingly, and the people's food was untaxed, and their manhood asserted; it was whispered, after the sword had been unsheathed, and the Irishman rejoiced in his forefathers' privileges; and may it not again be echoed, and the land set free to the best uses which the national weal demands? To add to the population by subduing the wastes of our country, and thus to enrich us in times of peace, and guard us in times of war, is a subject as deserving the consideration of patriots and statesmen, and as worthy the best efforts of a great political party, as any of the above named questions.

Apart from the general good that would result from an increased supply of mutton and wool, let us look at it from the Highland tenant's point of view, and see whether his vested rights have not been usurped, and whether legislation is not as necessary for restoring him to his forefathers' heritages, as it is for the most grievous case of

tenant right in Ireland. The origin of Highland chieftainships began thus: the biggest and strongest man that could be got in each clan was chosen to lead in all offensive and defensive operations, for which he received remuneration; but as time wore on the Highlander's rude watchword,

"That they should take who have the power,  
And they should keep who can,"

was turned upon himself, and charters were granted to these elected heads to possess the entire soil. The present Highlander's forefathers made the chiefs and supported them, and as a requittal the sons of these chiefs have turned round and expatriated their benefactors, who are now no longer of any service to them, national funds being set apart to protect the property thus wrested from its rightful owners. This is how the useful sheep was originally set aside to make way for the deer. Many of these lairds waxed fat; others sold or let their property to wealthy merchants; and either party having more of this world than they could use, thus laid waste large tracts of country for their own amusement. Some of these gentlemen are very gracious, and would permit sheep to pasture beside their favourites, if only sheep and deer could agree; but they have not patriotism enough to declare that, rather than let their countrymen be banished, and hundreds of thousands of acres

lie waste to their country's woe, they will give up their annual sport, even for a season.

It has been pretty clearly shown, more than once, that it is more profitable for Highland proprietors to put their mountains and glens under deer than under sheep; but it has likewise been as clearly shown that the nation loses by the transaction in a two hundred-fold degree, without even considering the increased comforts certain to flow from a plentiful supply of home-fed mutton, and wool. The State, therefore, has a duty to perform—a duty worthy of its dignity and patriotism—and that is, that neither pleasure nor profit shall be allowed to stint its growth, and that so long as there is one inch of soil capable of adding to its greatness and happiness, that inch shall be used for no other purpose. True, we cannot make men good by Act of Parliament; but we can make sure that they shall not injure society.

But what is of the utmost importance in considering the comparative value of sheep and deer holdings, lies in the fact, that while the former enrich the soil on which they pasture by taking no more off the grass than is required for future growth, while by their numbers they leave a valuable manure to nourish the ever-growing blade,—the latter so crop and trample the spots to which they take a liking, that seasons must elapse ere there will again appear fresh shoots of length suffi-



cient to be eaten. The animal that ministers to the comforts of the many has "golden feet, and wherever the print of them appears the soil is turned into gold," while the animal that is kept for the pleasure and luxury of the insignificant few who shoot and eat it, has iron feet, the impressions of which turn the soil into stone. Long, long ago, the same strain was beautifully given in that inexhaustible language of song:

"The bonny harmless sheep  
That feed on mountain stey and steep,  
Bleeting sweetly as they go,  
Thro' the winter's frost and snow;  
Hart, and hind, and fallow deer,  
Not by half so useful are."

As everybody is so directly acquainted with the national value of mutton, little need here be said about it. In 1869, as the Board of Trade returns inform us, we had  $34\frac{1}{2}$  million sheep, which at even £1 per head is a tidy sum. But suppose that sum doubled, as it could easily be, what would be the result? An increased population, an improved soil, creature comforts multiplied, and the money that is sent abroad for food and wool scattered broadcast over British society; while the sportsman might still indulge in his favourite recreation of grouse, woodcock, partridge, or hare shooting. If not satisfied with this, let him go to wilder countries, to India or the Straits of Mal-

acca, where the exercise of his pastime would prove a boon to mankind, as thousands of human beings are there said to perish annually from the attacks of wild animals.

But to the whole world, as well as to Britain, the wool of the sheep has ever been of more importance than its flesh ; for, to complete the verse above given,

“ Fra king to him that hauds the plow,  
All are obliged to tarry woo.”

Doubtless man's first clothing was of vegetable material ; but “ wool, since Eden closed its gates on our progenitors, has been a current coin,” and will ever remain a foremost article of commerce, as it is universally worn in all the temperate regions of the earth, and is the most important of all animal substances used in manufactures.

Seen through the microscope, wool has the appearance of a string notched all over, somewhat like the edge of a saw, or an old scaly serpent. When moistened and put under pressure, these scales or notches give to it that constituent element which makes it serviceable in the process of felting. When on the sheep, this property of matting together is hindered by a greasy substance that comes from the skin, called “yolk.” This secretion repels the action of water, and keeps the wool free. It is consequently of great importance that

no substance should be used for cleansing sheep that will in any way remove this natural protector of a healthy fleece. To show the fineness to which woollen threads can be spun, a case is recorded where one pound of wool was spun to the length of  $95\frac{1}{2}$  miles; and even in ordinary spinning it is said that a fleece of 7 lbs. will make a thread 155 miles long.

The art of wool-spinning was known and practised as far back as history extends; but it is to the Romans we are indebted for the vast improvement they introduced into Britain in the manufacture of woollen stuffs. Naked savages they found us, but they left us masters of the arts of spinning and weaving, and capable of making dresses for ourselves that soon rivalled their best workmanship. The first factory established by them was in Winchester, which gave occupation to a number of unmarried women, and to their representatives forever the name of "spinsters." Now-a-days mill operatives are looked upon as menials, but nine hundred years ago their occupation was that of princesses. Edward the Elder, who married the daughter of a shepherd, thought that he could not do better with his children than "sette his sons to scole, and his daughters to woll werke," an example we of this generation need not be ashamed to follow. After this period, woollen stuffs became a regular article of manufacture and

merchandise, as the money levied for government purposes by Edward III. amply prove. He was even up to modern tricks of trade, and "rigged" the market to suit his requirements, by proclamations setting forth that no one was to buy this valuable commodity till he was served. Commercial speculation, or the need of money to carry on the war against France, at one time so overpowered him, that he got his Parliament to assist him by special enactment. Having purchased 20,000 sacks by preference, he got terrified lest some speculators should reach the foreign market before him, and so got a special law made for the occasion, enforcing heavy penalties on any person daring to export before him. To be a king in these days was to be *a king* indeed. But let us be charitable. Commercial Edward probably hated tax-gathering, and would therefore prefer selling goods to the foreigner to getting an Act passed for the extraction, willy-nilly, of half a million a-year out of his people's purses.

From the days of this royal woolbroker, to the time of Henry VII., rapid strides were made in the export wool trade, despite the most ridiculous restrictions that the government of these days put upon it. Little increase was allowed to be made during the reign of Henry VIII., for he debarred his subjects by a monstrous monopoly from trading in wool, by an Act which ran thus—That yarn

is the "private commodity of the city of Norwich and county of Norfolk," and shall not "be transported, nor shipped to be transported, nor bought, nor cause to be bought by any but weavers in said city and county." Norwich manufacturers must have possessed beautiful daughters thus to have become the recipients of such extraordinary royal patronage. But before "the setting of that bright occidental star, Queen Elizabeth, of most happy memory," the wool trade had increased till it had become one of the first sources of Britain's wealth, although the exportation of sheep or wool was strictly prohibited on pain of having the right hand struck off. As a memento of the passing of this Act, wool being then the principal source of England's wealth, the famous woolsack was introduced into the House of Lords as the Lord Chancellor's seat. It is composed of a large square bag of wool, covered with red cloth, and having neither back nor arms. Such is the way our forefathers took to hand down to their children the value they attached to the sheep, by setting the highest authority in the realm on a simple bag of wool.

Before the Union, Scotland also carried on a special and thriving trade in wool, and the same governmental care was bestowed on it as in the sister kingdom, as we often find in old Scottish Acts most severe regulations regarding it. Between the port of Leith and "the Dam," as Rotterdam

was familiarly called, wool was the principal article of commerce; but no fleece was allowed to cross the Borders into England upon any consideration. Then the English needed Scotch wool to keep them warm, but a river they dared not cross to get it; and till recently they wanted Scotch whisky for the same purpose, and still that river stopped the way.

Every successive king managed to get a law passed on wool. George II. had one which he ordered to be read in all the churches four times every year, which runs thus: "That no corpse of any person (except those who die of plague) shall be buried in any shirt, shift, sheet, or shroud, or anything made or mingled with flax, hemp, silk, hair, gold, or silver, or in any stuff or thing not made of sheep's wool only, or be put into a coffin lined or faced with any sort of clothier's stuff, or any other thing made of any other material than sheep's wool only, under penalty of £5." No wonder that we were termed a nation of shopkeepers!

George III. followed, but in a little better strain. Had he extended the provisions of his Act to the shepherds as well as the sheep, our Highland glens of the present day would wear a different appearance, citizens would sleep more soundly, and the nation at large feel satisfied that come what might there were plenty of strong arms to defend

our trade and our homes. This king's Act ran thus: "That if any person shall send or receive any sheep on board any vessel, to be carried out of the kingdom, such vessel shall be forfeited, and the person so offending shall forfeit £3 for every sheep, and suffer solitary confinement for three months." As if to mark the going out of the Georges, the last vestige of these obnoxious legislative restrictions on wool was swept off by Sir Robert Peel. The 1d. per lb. duty he abolished, and the wool trade has ever since been free. Like his other tariff changes, this Act created not a little alarm; but time has shown that the British stock farmer has lost little by the change. The peculiarities of our home wools are so marked, that they are almost out of competition with foreign produce. As yet at least they are fetching remunerative prices, and that, too, against the enormous imports of recent years. If the stockman can thrive fairly, after being confronted with 870,000 bales of foreign wool in one year, he may exist when our imports reach a million.

But let us see whether free trade has not improved the wool growers' position. During several of the years which have elapsed since Peel's free trade policy was inaugurated, we find wool selling at, for white Cheviots, say 20s. on an average. The panic of 1834 ran it up to 40s. a stone, but the fall was almost instantaneous, and many

buyers were ruined in consequence. Again in 1848, the year of Continental commotion, it fell below 18s. a stone; but the American war of 1864 more than met that fall, the price then paid for Cheviots being 58s. per stone. In 1869, good Cheviots realised from 33s. to 34s. 6d., a very fair price indeed. During all these periods half-bred and bred wools ruled similarly, with of course the few shillings above Cheviots which they invariably maintain. Any one familiar with the wool trade will remember the time when good white breech wool only fetched 11s. a stone., and now it is considered a bad market if such wools fail to realise 20s. In 1852 laid Cheviot was often sold as low as 14s., while now it fetches 24s. At the same time blackfaced white washed brought only 10s., and now sells at 20s. per stone; and good laid Highland, which at that time rarely brought more than 6s., at the present day, when trade is flat, readily secures 11s. to 12s. a stone.

These are weighty facts, with which no logician can meddle to the advantage of old-school politics; and they unmistakably demonstrate the truth of the great free trader's assertion, that in a very few years farmers would be put in a better position by these changes than they then were, while the nation at large would be greatly benefited, and British commercial principles continue to be looked upon by the world as worthy of being fol-



lowed, seeing that it was the natural financial policy of a free people. The increased value of wool is not the least important national gain which has verily sprung from the great statesman's far-seeing wisdom.

The wool trade of Scotland has been greatly improved of late years by the establishment of regular sales. Formerly it was with much difficulty that small parcels could find the proper class of purchasers, as large buyers could not afford to go out of their way to look at them; but by means of these sales the man who has a few stones to sell is put on an equality with the larger grower. Woolbrokers are otherwise most useful to stock-farmers of limited means, because advances can be got from them at any time, until a good sale is effected. As manufacturers cannot afford to let their mills stand for want of grist, fair prices are thus obtained, and the necessities of the small grower freed from the action of the wool-spinning millionaire. The requirements of the wool-spinning trade may be conceived when one mill takes 33,000 lbs. of wool per week to keep it going. Every thread of that enormous quantity is made into worsted in six days by beautifully-adapted wool-combing machinery, which gives to the fibres a lustre and waviness that the old, slow hand process could never equal. The term worsted given to combed wool is said to have its

origin in the village in Norfolk of that name, where first its manufacture was carried on.

Wool sales have another advantage, in that all their transactions are gone into by the price per pound, thus doing away with the difficulties frequently experienced from each locality having its own peculiar stone. The stone in Brechin, for instance, is 22 lbs., while the stone in Hawick is 24 lbs.; but in Bradford it is only 14 lbs. An inferior blackfaced fleece sold in the former places, might in the quotations given of the sale, fetch a higher price than the finest Yorkshire wool sold in the latter, and the not thoroughly initiated would thus be led into a mistake of no small consequence.

These sales have also abolished the old-school style of buying and selling, over which much valuable time was spent with little advantage to either party. Wool fairs were no desirable localities on many occasions, and especially those immediately preceding others to be held on an early day. Farmers knowing that there was another chance soon, cared not to sell unless very tempting offers were made, and often a whole day would thus be consumed in haggling, before a single sale was effected, to the great annoyance of buyers from a distance. But the greatest advantage of public sales lies in the justice it metes out to the careful wool-grower. His produce is laid side by

side with that of others, and from its superiority at once starts a competition that ends to his material advantage.

As already stated in a previous chapter, the process of tarring and smearing wool is now fast disappearing in the Highlands, and we only repeat the remark here to show that by that ancient process the wool is termed "laid," in contradistinction to "white," when otherwise cleansed. It was a filthy process thus to befoul the emblem of moral and religious purity, and deserved abolition; and it is pleasing to observe that no loss has followed to those stockowners wise enough to adopt a cleaner wash, either as regards the health of the sheep or the prices realised for the wool. The opposite seems to be the result, if we can rely upon statistics given that the mortality among sheep is not so great now as when tarring was general from the Borders to Ultima Thule; while farmers discovered that to meet the many peculiarities of the trade generally, their wool sold more readily and at better prices in the "white" than the "laid" state—purity of colour being a desideratum in a majority of the stuffs manufactured from home-grown wool.

It is not our intention to describe the various qualities of wool, and give the prices which they bring, as that would drive us beyond our limits, without adding any material proof to show the

national value of the sheep. The part that that animal has played in the economy of the civilised nations of the world, and particularly in Great Britain, is matter of history. That we are still as much dependent upon it as were our progenitors requires no proof; but it is remarkable that while kings, lawgivers, and people alike took an interest in the culture of this animal in days gone by, those more directly connected with sheep—growers and dealers—are the only persons who at the present day interest themselves in this great national necessity and source of revenue. It is acknowledged by all classes of agriculturists, that in the whole range of their business the most difficult part of it is sheep-farming—not as it at present is conducted, but as there is that in it capable of fuller development which they have neither the time nor the capital to bring out; therefore it is not an agricultural subject merely, but one that men of science and the government of the country should enter into, as affecting the comfort, happiness, and prosperity of the nation at large. We have ever and anon commissions of inquiry—sometimes on rather trivial matters; but here we have a subject for inquiry that touches the interests of every man, woman, and child in the realm—the why and the wherefore of our national backsliding in this most essential part of our national resources.

It is easy enough to say that annually we grow

154,000,000 pounds of wool, and eat 750,000,000 pounds of mutton, the money value of which is £30,000,000, and then throw ourselves backwards with an air of comfort. Such silvern speech and self-sufficiency will not satisfy the requirements of an ever-increasing people, when food and clothing are beyond their reach consequent on a diminished supply, and that diminution caused by the iniquitous waste of their native soil! In the nine northern counties of Scotland alone there are a million and a half acres under deer that might be better employed under sheep, and but a few economists declare against it—the great British public the while quietly paying 10d. and 1s. per pound for their mutton, and a proportionate high price for their clothing. Statistics, likewise, demonstrate an enormous decrease in our growth of wools. The clip for 1870 left 138,903,197 lbs. available for home consumption, while that of 1869 was 143,904,858 lbs.; and that of 1868, 155,743,555 lbs.; while the Board of Trade returns show a decrease in the exportation of home-grown wools of about 1,000,000 lbs. compared with 1869. Calculations show the supply for the next twelve months to be 5,000,000 lbs. less than the 1869 clip yielded, and 17,000,000 lbs., or 10 per cent. less than 1868 clip yielded—a decrease sufficiently large to affect the value, and sufficiently important to justify the careful forethought of all engaged in this trade.

The decline in the growth of British and Irish wools has been said to be caused by unfavourable seasons in some parts of the country, and the fall in price, which, within four years, amounted to fully 25 per cent.; but the before-mentioned circumstance, over which we have control—increasing deer forests—has had more to do with it than is generally believed. To obviate this it is not anticipated that either individuals or the State will ever be able to put under cultivation, even for sheep, all the waste lands in the country, although some sanguine patriots talk about such a “good time coming;” but we do believe that great changes will—nay must—take place for the utilisation of vast tracts of country, whereby our supplies of food and clothing will be doubled, and that the persons who now stop the way will be compelled, by that voice which, when earnestly sounded brooks no denial, to hand over to its rightful owners, the British public, the free use of every inch of soil capable of being cultivated in what will then be our free country. May such individuals recognise their position in time, and not bring upon their children the iniquities of their fathers; for as surely as he who breaks a natural law suffers therefor, so surely will he suffer who hinders the development of the resources of a needful and industrious people.



## THE TRANSIT OF STOCK.

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**C**LOSELY allied to the foregoing remarks on what our country is annually losing by the non-cultivation of the sheep and waste lands, is the ruin consequent on modern systems of conveying animals to market or otherwise. Until the introduction of railways and steamboats, the transit of stock by road, unless from the islands of the west and north of Scotland, was the only method. The advantages of this primeval system of driving flocks from one place to another, especially as far as concerns the well-being of the animals, are numerous. If properly driven, and not unduly hurried, but allowed to eat, drink, and rest by the way, animals suffer little by a long journey, and are in most cases in as good condition at the end of it as they were at the beginning, and may even have considerably improved. There are not the deprivations of the ordinary necessities of life which are inseparable

from the present mode of conveying live stock by rail or by sea ; neither is there any great deviation from the mode of life to which the animals have always been accustomed. They saunter leisurely along on the way to market, taking, if properly driven, no more exercise than is good for them, and getting by the road-side all the food and drink that they require during the day, while at night they rest and are refreshed in a good pasture, where it is always seen that plenty of water is provided. There is no disturbing agency to annoy or frighten them. The ordinary even tenor of their existence is scarcely interrupted until they reach the market stance at the end of their journey, where they appear to much greater advantage than if they had been hurriedly conveyed by rail in trucks, and allowed neither food, drink, nor rest, and reaching their destination hungry, thirsty, and fagged. Such are the advantages of this mode of transit, its principal drawback being its slowness.

But the time thus lost in taking animals to market is of much consequence, while it is likewise unsuited for a great part of the stock which is sold to the butcher. Lean stock may walk to market, and not only get no harm by it, but may even gain in weight and improve in condition before reaching the journey's end. Fat stock, however, cannot do so with advantage.



Before such animals have gone far they get tired and foot-sore, and if compelled to travel any distance, lose weight, and do not reach the market in so good a condition as they were in when they started. It is the mere result of an unusual amount of exertion; there is no disease in the animals, and nothing more than a few days' rest is required to put them all right again.

For lean stock, or stock not intended for the butcher, travelling by road is the best mode of transit; for fat stock ready for consumption it is considered too slow, and is not for a moment to be compared with the steamboat or railway, if these were properly managed.

The great advantage of steamboat and rail is the facility and rapidity with which stock can be conveyed from one place to another. It would be folly to think of driving fat stock to market from such great distances as they are regularly conveyed by rail. Transit by steamboat and railway must ever now be the principal means of conveyance. It is therefore of the greatest importance to inquire into the treatment to which animals so conveyed are subjected, and to see whether they suffer or are injured on the journey; in short, to inquire carefully into the disadvantages attendant on this mode of transit, and to see whether or not any such evils which exist may not be remediable, and the transit of stock, and especially of fat stock.

so arranged that the animals may be brought to market not only quickly and easily, but without having their condition impaired or their value deteriorated by the hardships of the journey.

That an animal which had never to undergo any hardships, and whose daily custom from its birth upwards had been to eat when it felt hungry, to drink when it felt thirsty, and to lie down when it felt so inclined, should suddenly have this quiet, placid mode of existence interrupted by a voyage from Holland to England, or by a railway journey from Aberdeen to London, without feeling, and to some extent showing, the effects of the journey, is not to be expected. It has been maintained that all animals that chew the cud must eat and drink every five hours to keep the system in perfect health, though they can go longer without material injury.

Few men, even though accustomed to take frequent journeys, can even in a comfortable first-class carriage travel from Aberdeen to London without both feeling jaded and looking "seedy" at the journey's end. How much would this fatigue be increased were the time occupied in the journey four times as much, were the unfortunate passenger put into a closely-packed third-class carriage, and then prevented from having the least refreshment from the time that he started until he reached his destination! Such are the priva-

tions to which cattle and sheep are subjected. The poor creatures are forced into steamers and trucks by means the cruelty of which is as superfluous as it is revolting. They are often thrashed and belaboured with sticks, and have their tails twisted in a manner the sight of which would make the blood of any humane person boil with indignation; and after this cruel process is finished, the journey commences.

The fear and alarm which animals must experience from the novelty of their position, the constant rattle and whirl, the noise of the engine, the jolts at shunting, and in a steamer the pitching and tossing, are of themselves sufficient to have a damaging influence on the animals; but what shall we say of the blind folly and refined cruelty of a system which, not content with these inevitable discomforts, must needs add other tortures which go on increasing in intensity from hour to hour, and must produce such exquisite agony by the time they reach the end of a long journey, that the frequency of disease among travelled stock, and the great increase of all kinds of cattle disease since this mode of transit was adopted, ceases to be a matter of surprise!

The poor brutes are often so closely packed together that they cannot turn or change their position; and to the pain resulting from the blows inflicted at the time of embarkation or trucking,

is soon superadded the irksomeness of a constrained position. This irksomeness is soon developed into positive torture, as is observed by the constant restlessness and struggling amongst the animals. To all these evils is added the still greater one, that from the time the journey commences till it is finished (often a period of two, three, or four days), the animals get not a particle of food, and worse still, not a drop of water. To treat the useful brute creation in so barbarous a manner is an outrage on our humanity; and besides being morally a crime, is practically a blunder of the grossest kind. The loss sustained by the conveyance of stock after this manner is incalculable. Stock owners lose by getting less for their animals than they were worth when they started; butchers lose by getting animals which have been for days suffering from the pangs of hunger and thirst, and which (though they have not got time to lose much of their fat) does not afford good wholesome meat: the public lose by having such damaged meat brought into the market; railway companies lose, by every now and again having to pay for damage done to stock; while the country at large suffers by the facilities thus created for the propagation and spread of disease.

That such cruelties are constantly being perpetrated both by sea and land, has been abundantly proved by the mass of evidence which has been

accumulated within the last few years, and more especially since public attention was roused by the existence of rinderpest among us. Detailed evidence of this is unnecessary, but one or two examples may be given. As tending to prove the manner in which cattle suffer from the mode in which they are treated on board steamer, we shall quote an extract from the "Rob Roy in the Baltic," by J. M'Gregor, M.A., Trinity College, Cambridge, whose evidence is the more valuable, as it is that of one not specially interested in the matter, and is only given inadvertently.

"The lowing of 290 great fat bullocks soon announces what sort of fellow passengers we have to carry. Poor things, they are packed together in three tiers, one over the other.

"'Oh, the roast beef of old England!' The sad twinges borne by that 'undercut' before we eat the sirloin in London—the Slesvig thumps to drive it to a pen on the Weser; the German whacks to force it up a gangway on board; the haulings and shoves, the wrenching of horns and screwing of tails to pack it in the hold of the steamer; the hot thirsty days, and the cold hungry nights of the passage; the filth, the odour, the feverish bellowing, and the low dying moan at each lurch of the sea—who can sum up these for one bullock's miseries? and there are thousands every day. Who dare tell them, or ought to tell them, unless

these cruelties can be stopped and these sufferings put an end to? But they can and will be relieved, for good and wise men have taken this subject in hand. Our captain, and indeed the crew and the drovers, did not appear to be heartless in the matter.

"It is the system and plan of shipping cattle at all which must be amended. To put suffering dying bullocks in the same steamer with passengers is utterly a mistake. The vessel cannot be used for both purposes without being unfit for either, since the two are quite incompatible. If a poor bullock becomes at all sea-sick, he speedily dies. If he is even weaker than his unhappy companions, and lies down after two days and two nights of balancing on sloppy, slippery boards, he is trampled under the others' hoofs, and squeezed by their huge bodies, and suffocated by the pressure and foulness.

"Through the live long night, while we Christians on board are sleeping in our berths, these horrid scenes are enacted, and no one to see them. Morning comes, and the dead must be taken from the living. A great boom is rigged up, and as we lean over the rail to look on, there is a chain let down, and the steam-winch winds and winds it tight, and straining with some strong weight below, far, far down in the lowest of the three tiers of 'filet de bœuf,' where no light enters, and

whence a Stygian reeking comes—slowly there comes up first the black, frowning, murdered head and horns, and dull blue eyes and ghastly grinning face of a poor dead bullock, then his pendent legs, and his huge large carcass. To see the owner's mark on his back, they scrape away the slush and grime, then he is swung over the sea, and a stroke of the axe cuts the rope round his horns. Down with a splash falls the vast heavy carcass, and £20 worth of meat floats on a wave or two—then it is engulfed. Another and another!—and twenty-two are thus hauled up and cast into the sea; and this too in the first day of a very calm passage! What must it be in a storm? ‘Oh, the roast beef of old England!’”

As evidence of evils attending the present mode of railway transit, it will be sufficient to instance two cases, which have recently been made public. In one case, twenty-one cattle sent from Doune, near Stirling, to Winchfield, near London, were four days and four nights on the journey by rail, and during that time tasted neither food nor water; no wonder that only nineteen out of the twenty-one reached their destination alive! The two cattle that died were paid for in full. The nineteen never rightly recovered, and would have died of rot if they had been kept over the year.

The other case is one tried recently before the Dundee Sheriff Court, in which the Scottish North-

Eastern Railway Company was sued for damages sustained by a lot of travelled cattle, which had been sent from East Haven to Newcastle, on Saturday morning, but did not get there till Tuesday, in consequence of the railway officials having untrucked the cattle and turned them out into a loose shed to knock each other about for twenty-four hours. The Company had in this case to pay £24 damages and costs.

Other instances might be adduced, were it necessary to do so. Most men, however, who have any experience in the matter, will be able from their own knowledge to call up abundance of evidence in support of that which has been given, to show that live stock suffer much from the manner in which they are conveyed to market. And not only is their condition deteriorated at the time by the privations attendant on the journey on which they are sent; but there is also produced a large amount of disease, whose ravages continue, and whose effects are felt long after the journey is at an end. Animals debilitated and exhausted by a fatiguing journey, and such attendant privations as have been indicated, are just in the condition which renders them most susceptible to the influence of any morbid agent to which they may be exposed. Suppose that a dozen cattle are trucked at Aberdeen for London, in two separate trucks (six in each), which had shortly before been used



for the conveyance of animals suffering from pleuro or any other contagious disease, and suppose that the cattle in the one truck are regularly watered and fed every few hours during the journey, whilst those in the other got nothing, which of the two lots are best fitted to resist the germs of disease which had been left by the animals which had preceded them? Doubtless it would act most rapidly and effectually on the lot which had received no care and attention, and which was consequently in a weak state, and unable to resist an agency which those in good condition might encounter with impunity. The animals are suffering from famine artificially produced, but not the less real on that account.

The effect which famine has in the production of disease, is only too well known to those who can remember the frightful ravages committed by typhus and famine fever amongst the Irish twenty years ago, when the failure of the potato crop deprived them of their chief article of food; or who have noted the manner in which more recently strikes and commercial distress, and the consequent inability to procure the necessaries of life, have been almost invariably attended by the same deadly foe. It is a well-known fact that the cattle plague showed no tendency to decline till Government issued orders forbidding the transit of stock by rail; and that as soon as the restric-

tive regulations came into force, there took place a marked and rapidly-progressive diminution in the number of animals attacked. But the beneficial results did not stop there. It was found that not only rinderpest, but pleuro-pneumonia and other forms of disease were much less prevalent than before. The cattle all over the country seemed to be in an unexceptionably healthy condition, and the only reason which could be assigned for this, was the stoppage of the ordinary mode of conveyance, facts all tending to prove (what few of the initiated will dispute) that the present mode of transit acts injuriously on the animals conveyed. That last noted, that the stoppage of the usual mode of conveyance of stock by rail was followed by a great diminution in all forms of disease amongst cattle, is a very important one, and although it is impossible to give accurate statistical data in proof of it, the circumstance has been so generally observed, that few will be disposed to doubt its accuracy. It teaches us plainly that the present mode of conveying stock has a deleterious effect on the animals, and must be blamed for much of the disease which prevails amongst them. Such being the case, it becomes us to endeavour to find out whether it is some condition inseparable from, and necessarily attendant on, a journey by rail or sea, or whether it is only some accidentally attendant condition which may be done away

with? If the former, we must submit to it, as we cannot do without the rail; we cannot again have recourse to the old slow method of driving. If the latter, as a matter of humanity, it is our duty—as a matter of economy, it is our interest—to have it removed.

It has been pretty clearly shown that it is more to the unnecessary privations attendant on the present mode of transit, than to the necessary fatigue, that we must look for an explanation of such evil results as have been noted. When a horse is conveyed from one place to another by rail, it is put into a box or stall by itself, and gets a regular supply of food and water, just as if it were at home. The consequence is that it reaches its journey's end in an unimpaired condition. Let the same animal, however, be put in a cattle truck, with several other horses, so that it is obliged to assume and retain a constrained and awkward position, exposed to all sorts of weather, and let this truck, instead of being attached to a passenger train, be hooked on to a goods train, with all its attendant shuntings and jolting, and above all, let the animal during this unnecessarily prolonged and tedious journey, have not a drop of water, and not a bit of food, and the result would probably be that the same horse that had previously done the same journey in its own box with impunity, would now be worth about half the

sum which it would have brought before starting, if indeed it were saleable at all. Cab horses, when being driven along the road at a moderate pace, require water every three hours, if water can be had. It is a well-known fact that a good many horses have been lost, and their careless driver killed, from thirst having caused them to go over a bank to obtain water from some small rivulet or river by the way side.

If horses are capable of undergoing long journeys without injury, as we know that they are, there is no reason why cattle should not do the same, provided that they were properly looked after, and have the same attention given to them which is bestowed on the horses. It seems, then, that the evils of the present system have no necessary connection with it, but may be remedied by very simple and inexpensive appliances. These evils are—1st, The unnecessary time occupied on the journey; 2d, the wanton deprivation of the simplest necessities of life, "food and water."

Both these conditions are perfectly remediable, and it is matter of surprise that the legislature has not long ere now taken some steps to provide against the possibility of the perpetration of so much cruelty as is daily inflicted on cattle travelling by rail. The first evil, the unnecessary length of time often occupied on the journey, is one which might be very easily got over; all that

is required, is a regulation to the effect that live stock shall not be conveyed for more than a certain distance by ordinary goods train. That evil, however, is a small one compared with the second. This, though it presents greater difficulty at first sight, is by no means irremediable. The chief object to be obtained is the watering and feeding of the animals at regular intervals during the journey. The best mode of doing this seems to be a plan devised by ourselves, that has been before the public for some time past, and which has been very much approved by practical agriculturists and railway superintendents, and the principle of which is that the troughs shall be attached round the truck, into which water can be poured by the same means that it is poured into the engine, and from which the animals may conveniently drink without moving from the trucks. And part of the same plan provides for the means of feeding by arrangements similar to those in use in stables or ordinary cattle pens, such an addition being as easily put up in a truck as in a stable.

In short, the great evil is in the present imperfect construction of the cattle waggons. These ought to be made so as to protect the animals from inclemency of weather, and to permit of their being regularly watered and fed. In addition, there ought also to be at the various wharves and stations, sheds into which the animals could be

put when it was necessary for them to wait for any length of time, and in which they should have both water and food. The expense which would necessarily attach to such a course might easily be met by an increase of the charge for conveyance, which would be more than repaid to the owner by the increase of price which his stock would bring in the market; thus removing the great cause that has been in existence for artificially spreading disease amongst cattle and sheep since the carrying of them by rail commenced about the year 1842. Any one that has noticed this matter at all, must have seen that with the spread of our net work of railways in Great Britain, the spread of cattle disease has kept pace, and has now reached such a magnitude, that legislation to grapple with it has been found to be an absolute necessity.

We have for many years been forcibly drawing the attention of the public to the grievous wrongs the country has been perpetrating ever since the transport of live stock has been principally done by sea and rail, in providing the animals with neither water, food, or shelter, during twenty, forty, sixty, or any other number of hours. This is aggravated by the rapidity with which stock are carried through the air, and then almost instantaneously shunted into sidings for hours together, exhausted, bewildered, and half if not wholly

mad with the raging thirst that is consuming them.

That any mode for carrying stock should ever have been invented, without having the means provided whereby they could be watered and fed, is matter of surprise. It is well known that the entire business of all animals intended for human food, is to eat, drink, rest, and sleep, without intermission, as the first act of such animals on rising from their lair, even in moist weather, when feeding on rich sweet grass, is to go to a watering place for a drink, before beginning to eat; and this, on the authority of ancient and modern agricultural writers, they do twelve times during the twenty-four hours. No wonder such lamentable results follow, when the animals are suddenly deprived of the principal comforts of their existence, and sent away on a journey of sixty or seventy hours, in a close box. Prior to their removal for sale, it is the constant study of the farmer to see that not only are all their wants supplied, but that they should be kept in perfect health, till they are fit for market. What follows? they are taken out of the beautiful green fields, if the time of removal be summer, and if winter, are removed from a warm well-ventilated house, and driven to the first railway station, reeking with perspiration from the difficulty of walking on the frozen slippery roads. In this state they are packed into

open trucks, and shunted and knocked about before starting, until they have the most miserable appearance. Every observer has witnessed such scenes, and every humane being has shuddered at the sight thereof. Add to these horrors, starvation by the way, and you have the modern animal on which metropolitan butchers exercise their unintellectual trade. But apart from the question of cruelty and loss to the country, such acts endanger the health of the lieges who have to buy and eat such food. The first act of sheep or cattle on coming off a long journey—if they are not driven past it by such cruelty—is naturally to devour greedily anything they can get at—the dirtiest pool or the foulest blade being made sweet by hunger and thirst; and this is the sort of preparation for the blood that is surging and boiling through the veins of animals that will shortly after be conveyed as food into the stomachs of human beings.

From this point of view, therefore, the proper transit of stock becomes a public question, calling for immediate action; and if such cannot be forced upon our carrying companies from motives of humanity, if not from profit, the legislature must be called upon to see that those laws it has recently introduced are carried into effect.

Professor J. B. Simonds, of the Privy Council, London, states that there ought not to be a second



opinion among humane persons of the value of such a blessing as the introduction of our improved cattle truck, in lessening the hardships to which cattle carried by railway are now exposed ; therefore, to travel cattle without their comfort being in every possible way provided for, when such a necessary arrangement can be accomplished with little additional trouble or expense to our great modern carrying companies, is a wilful abuse of God's best mercies, and is not only cruel, but is a crime against the laws of God and man, and much against the best interests of the country.

That the public in general, and the agricultural community in particular, should submit to the loss sustained by such iniquitous usage of their property, is matter of surprise ; but that the country should allow those laws which have been recently made to remedy this evil to lie as a dead letter, is a direct proof that its moneyed interests are of more consideration than the general welfare of the lieges. Acts of Parliament, with Provisional Orders enforcing the same, seem to be of no moment, when the fancied interests of Mr Railway Scrip are put in the balance. Fancied, we say, for it can be shown that railway stockholders would be the greatest gainers by the erection of proper trucks for the transit of stock.

To meet any expense railway and steamboat companies would necessarily incur in effecting a

change so greatly required, so much more money would require to be paid by the breeder and feeder than is paid by them at present. And this, by the showing of an experienced London salesman, would be paid back to them a hundred-fold. Cattle worth £30 to £40 before leaving Aberdeen, he says, are depreciated to the extent of £5 a-head during a journey to London; and there can now be no doubt that the stoppages of the cattle traffic was a very serious loss to all railway companies, if it had no worse effect on our trade, which is not yet wholly recovered from the depression experienced during such stoppage.

But not only in a humane point of view has the subject of the transit of stock both great interest and importance to a commercial country such as ours. Leaving altogether out of sight the barbarous inhumanity practised in the present mode of conducting our extensive cattle traffic, and taking a purely economical view, we arrive very nearly at a true conclusion of its evils to our prosperity and trade, and also to the well-being of the entire population. This has been proved from facts which are clear and undeniable when the matter is investigated into. The statistics of an English insurance company, as given some time ago by Mr Finlay Dunn to the Scottish Chamber of Agriculture, shows the death-rate from Pleura (1863 to 1866), to be from 50 to 63 per cent. per annum.

It fell down during the stoppage of the cattle transit to *one* per cent., and never rose above that point until the traffic was resumed about the end of 1867. During the first seven months after the cattle traffic commenced on the old system, the death rate reached 30 per cent.

These figures demonstrate the cause of cattle disease. But besides that great national loss, we have further to consider our losses from the large quantities of beef and mutton which become damaged from the knocking about cattle receive while in trucks of the present construction, from the pressure of one animal upon another, and also the pressure against the sides when too many of them are crowded together, thus from bruises rendering good meat unfit for human food. And to meet this great loss, which we have endeavoured to point out, we require to fall back for a supply from abroad, thereby causing large sums of money to be paid out of the country for a perishable article that could with careful management be obtained at home, as this country is perfectly capable of rearing and feeding as many animals as would supply the whole population, if all the departments of the business were carefully managed. Not that we object to the bringing of foreign stock into this country, for any fear of infection, if the animals are healthy when put on board, and properly and carefully attended to dur-

ing the journey, but that we should not rest on a foreign supply for that which we can ourselves produce. In 1865-66, we paid to the foreigner about eleven millions sterling for stock, a great portion of which was killed by disease, clearly attributable to bad transit.

To show how our food is wasted, by the present mode of conducting the dead-meat trade, principally caused by the imperfect means used for carrying live stock, we will take the general report of the metropolitan market for a text.

This matter, to make it clear, requires some explanation, which such statements made in reports of the Metropolitan and other cattle markets do not show. They often report "middling and inferior beef as being extremely dull to sell, owing to the state of trade in the dead-meat market." Now, if we suppose, from the bad state of trade mentioned, that one quarter of the dead meat offered for sale was left over unsold, the question naturally arises, what became of it? We know that it will not keep, but will very shortly become decomposed, and thus cause, in the course of a year, an enormous loss to the community at large. It may be said that this state of matters is well enough known to the authorities, who ask, how it is to be remedied? They go no further, however, but quickly enough give orders for the destruction of some thousands of pounds weight of good

wholesome beef and mutton as being in a diseased state, but which was perfectly sound and good two days before. The answer to the question is, that under the present state of matters, and the manner in which animals are carried, there is really no remedy for this great loss, because the meat of the living animals, from fever contracted on the starvation journeys to the market, will no more keep when slaughtered than the meat slaughtered in any distant part of the country, and sent to the market as dead-meat. To keep living animals over for a week or ten days before being slaughtered, six weeks' feeding is necessary to put them in the condition they were in before being trucked, or, in other words, a loss to the public has been made in beef to the value of £3 sterling per head. And this loss is made on almost every animal that has been treated thus; because, when an animal is finished for the butcher, except the last six weeks of its feeding before being sold as fat, it will cost 10s. per week for extra feeding, or £3 sterling per head; so that with proper transit every farmer under the present *regime* who is able to feed twenty cattle could as easily feed twenty-three, if the animals were set down at the door of the feeder in as good health and condition as when they left the house of the breeder. This of itself would give to the country fifteen per cent. more fat cattle than can be fed at present; add to this

the fifty to sixty-three per cent. that die yearly from pleuro-pneumonia engendered in transit, and the butcher meat of the country would be increased *seventy-five per cent.*

How can we wonder that, under such circumstances, pleuro and rinderpest are hatched? From the great privations endured the blood becomes stagnant and the liver loses the power to purify it. Inflammation is therefore the result, and pleuro-pneumonia is engendered; and from animals not being able to tell that such a seizure has taken place, before the diseased state they are in can be noticed, it is generally too late to have any chance to effect a cure. When this is remedied, and animals taken to market in a natural manner, and supplied on the journey with all the necessaries required to sustain life, but especially being allowed to rest their heavy bodies in the carriage which conveys them—we say, when this is done by proper railway carriages being adopted, our stock will be delivered healthy at the end of the journey, and thus do away with the dead-meat trade altogether. Under any circumstances that market should be abolished, because in the event of slack sales the properly-carried animals would at all times be either in a state to be immediately slaughtered or kept over to another market, without any fear of loss or falling off in condition. By proper transit we would secure good wholesome

butcher meat, and require less to depend upon the "foreigner," save much of our money, and keep the prices of beef and mutton more equal, and at a lower level than has been the case for thirty years, when 4½d. to 5d. per lb. was thought good prices for the best three-year-old wedder mutton. With the improvements which have been made in farming during that period, the extra quantity of home-reared and home-fed meat should be enormously increased if there were not some unthought of ulterior process going on to destroy that which has cost the country to replace during these thirty years, as much money as would have paid the *national debt*.

Besides the evils incurred from loss of condition and pleuro-pneumonia, there is also the danger of starvation diseases breaking out amongst cattle so carried, which never occurred when animals were removed from place to place on their own feet, as the only means of locomotion that could be used. Then cattle had the careful attendance during the day of men properly trained for that purpose, who saw that they were properly timed during the journey, and regularly supplied during both day and night with water and food. They were rested all night in a field of good grass, and, thus secured, were freed from all danger of engendering disease, which now always follows to a most alarming extent, through our present unnatural mode of transit.

Proper transit is all that is required to cure the evil, and it now only lies with the public to demand that the law recently enacted, that all railway companies must provide properly-constructed waggons to protect stock from the weather, to prevent them from being overcrowded, and to provide a supply of water for all animals "carried, or about to be, or having been carried on the railway of the company," should be strictly enforced. As water has to be given every twelve hours, the word "carried" provides for this, and obviates untrucking, which would be a serious evil, and would much deteriorate the animals.

The Act provides that animals must be watered before being trucked, and also when they are untrucked at the end of the journey, which is not of much consequence, seeing that provision is made to water all animals carried, to fulfil which this clause can only be accomplished while the animals are in the trucks, because the word "carried" prohibits untrucking. If taken out of the truck the animals can no longer be said to be carried.

But further, if railway companies will not be induced to build and use only stalled waggons, in which a supply of hay and water can be placed, to give to the animals carried in them at stated intervals during the journey, an application ought at once be made to Parliament to grant powers to a joint stock company to build and use watering



feeding, and protecting cattle waggons on the different lines of railway in the country. From such a scheme a very large dividend to the shareholders would be realised from the small extra charge being made of 2s. 6d. over the present rate charged on a journey from Aberdeen to London, which would yield above 30 per cent. per annum on the capital invested in the trucks; the consigner of the cattle of course providing a supply of hay to each waggon before starting on the journey, or paying for it to the railway company at so much per stone. The water costs nothing, and can be supplied to each waggon from the present hose erected to supply the engines. A waggon company would also reap the benefit of the drawback on mileage which is at present allowed to parties using their own waggons; and there is no doubt if such a scheme as this were set agoing, it would receive the hearty support of all lovers of humanity, and also a profit, as something like 100 per cent. might be expected to be realised.

A commencement might be made, as a starting-point, either at Aberdeen or Inverness, with seventy waggons, which would form two special trains of thirty-five waggons each; one train to be leaving the south with lean English cattle for the north, the other thirty-five waggons to be leaving Aberdeen or Inverness with fat cattle for the London market, at the same time, weekly

126      *THE TRANSIT OF STOCK.*

The present rate for one truck from Aberdeen to London, containing six cattle, is £7, which gives per annum      ...      ...      £364

Add to this 2s. 6d. extra per head, on six cattle, gives      ...      ...      39

Total,      ...      ...      £403

Profit arising to a joint stock company from the extra charge of 2s. 6d. per head,      ...      ...      £39

Probable drawback to be received from the railway company for mileage at £2 per waggon,      ...      104

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143

£260

To the Cattle Waggon Company per annum, which has not the drawback of the construction of dear lines of rail to contend against,      ...      £143

To the railway company as their profit,      260

Amount per waggon,      ...      £403

Amount realised for one journey by a special train of thirty-five waggons, one way, will give yearly the gross sum of      ...      ...      £14,105

There can be no doubt that the facts we have stated are perfectly correct; and all the north

country feeders with whom we have come in contact are most anxious to secure the benefits to be derived from the use of watering and feeding waggons, for which they are ready and willing to pay an extra charge over the present rates of 2s. 6d. or even 5s. per head.

Few subjects have been more frequently before the public for the last six years than the transit of stock question. From the leading metropolitan journals, *Punch* included, down to the tiniest local print, all have had their favourable say on what should be done in this matter. The Highland Society granted us two separate medals for our invention, and the French Exhibition one. Notwithstanding all this ventilation, we find, at the very period when our cattle waggon was tried and found successful, and several years after it had been patented, prize essayists writing as follows to the farmers of this country: "In regard to the supply of water the difficulty is great. It is hardly possible to supply it satisfactorily inside the trucks from the inconvenience the necessary troughs would cause, and from the difficulty of filling them." Any answer to this on our part would be useless; but we shall put opposite it the remarks of one of the ablest journals in the kingdom, and the reports of eye-witnesses whose integrity and ability none dare question. The journal in which it appeared, *The Animal World*, has no superior, either in its

own particular literature or art, and may therefore be looked upon as unbiassed by railway or moneyed interests. On the first week of January 1870, it spoke thus to the world :

"Perhaps, of all superstitions in relation to animals, in our day, the most extraordinary and cruel (because continuing) maxim is one which has so long taught our countrymen that animals will not or cannot eat and drink during their transit from place to place. Experienced farmers and salesmen, even learned veterinary professors, have committed the country to this delusion. In the course of years to come, it will be incredible that for twenty years this dogma should have been believed. That cattle-carriers should preach it, that drovers and porters should endorse it, may be accounted for in their desire to reduce their own labours and responsibilities. The superstitions of which we have spoken may be as unaccountable, but they are not half so pernicious as this. Veterinarians and Ministers of State, it is said, have believed in the assumption, though it is opposed to the most obvious common sense, and no amount of reasoning has served to dissipate their delusion. In Parliamentary inquiries, in *The Times* newspaper, in books and reviews, it has been sworn to, or proved by 'the logic of events,' that overdriven, thirsty animals do not long for water on hot days when jammed together in railway trucks, and kept

in motion for twenty to seventy hours without refreshment of any kind. It is said that animals which aforetime, in their stalls, or in the fields, have devoted ten or twelve hours daily to feeding, and who have walked into the brook or river twice or thrice a-day for a copious indrench of water—in short, whose organic functions, whose formation of body, and whose head hangs low to the ground that they may engage constantly in grazing—it has been said, by ‘high authorities,’ that these animals, when delivered over to the tender mercies of railway carriages, prefer to fast for seventy hours. It is true they then require water more than before—that their tongues are parched, and their throats are inflamed—yet they prefer to fast! Surely this is superstition. But why so much self-denial? ‘It is from fear,’ we are told, ‘apprehension of danger—the trucks frighten them!’ etc.; and so instead of improving the truck, the carrier has adopted a bad carriage which excites cattle until the cravings of thirst and hunger are forgotten; and then he has withheld food and water, because ‘they won’t take it—it’s of no use trying them—we have seen them refuse it again and again.’ The fallacy of this system is, that railway boards have adapted their treatment of animals to the mode of transit already provided, instead of adapting the mode of transit to the requirements of animals. ‘This is a proper truck—

in this truck we can't feed and water animals—therefore, they must travel without refreshment.' We commend to them the following inversion of their syllogism: 'Animals must not be permitted to travel without food and water—they cannot have it in these trucks—therefore, these trucks must be adapted to their wants.' But let us examine their reasoning more closely. It is said animals will refuse food for seventy hours in a railway cattle truck, because of their apprehension of danger. Now, it will not be denied that hunger and thirst are the strongest sensations which lower animals are capable of. For food they will expose themselves to the worst dangers and sufferings, and in many cases the parental affection of the mother fades away under thirst and hunger when, obeying an instinct of self-preservation, she eats the very offspring she has tenderly nursed. Yet, when animals are in railway trucks, all this is changed, and they prefer to fast even for seventy hours! How intense must that fear be then which exceeds the desire for food, and especially the burning feverishness of thirst; and this view, perhaps, presents the abominable cruelty of railway transit of animals to the mind of a thoughtful man in the best light. But this is not all. Terror inflames the blood, intensifies thirst, and makes water the more needed by the affrighted animals. What wonder their flesh should be 'fevered' when they

arrive at the slaughter-house! Thus, upon their own showing, the present mode of transit is a public evil.

"It is obvious enough that official sloth, indifference to suffering, pecuniary considerations, and ignorance, have given rise to a gross superstition. After an ox has travelled a few miles in a railway truck he will drink, and drink voraciously too, if he can get it. It is somewhat late, now that Reid's truck has triumphantly proved this, to hear, for the first time from an experienced railway official, that 'cattle will drink during transit;' nevertheless, we hail the admission as 'better late than never.' But the public will naturally ask those who now make such a confession—why, then, has water been systematically withheld? Is not this cattle-fasting superstition like and unlike the Welsh-fasting-girl superstition—unlike in degree, but like in delusion? Have millions of animals been neglected, and consignors deluded, and human food deteriorated to prevent railway expenditure? The public must judge, and Parliament must shortly correct the evil.

"Since our last issue the suggestion made by Miss Coutts to try Reid's truck has again been carried out. A second trial has been made, of the new carriage, with signal success. We do not pretend there is anything novel in the truck, for it is simply a travelling stable; but it is new, and though it can hardly be perfect until tested and

modified by experience, its essential features for the supply of food and water are scarcely less than perfect. This truck has demonstrated (1.) that animals will eat and drink during transit: (2.) that they are better for such refreshment: (3.) that water and food may be carried in the same truck with the animals, and be given to them without any trouble. On this second trial judges, unknown to Mr Reid, were appointed to watch the animals during their passage, one of whom was the owner of the animals, and both gentlemen of probity and social position. Their report will have considerable weight with the Government. It should be explained that six animals travelled in Reid's truck, and six in a railway truck (not a common one), supplied with a roof, and with spring buffers. Throughout the journey the railway companies assisted in the trial, and gave a first-class carriage to the judges and to their own representatives appointed to watch the animals also. Doubtless on this occasion there was less of shunting, and certainly less of jolting than usual, and hence the animals in the semi-open railway truck arrived in very good condition. Had they been exposed at sidings for hours to the cold wet weather, and been shaken by sundry shuntings in a truck without spring buffers—the ordinary experience of cattle, except on the Aberdeen service—their condition would have shown much suffering during the



journey of forty-one hours. But the judges shall speak for themselves:—

Record of Experiment in the Transit of Cattle by means of Reid's Patent Waggon, reported by Mr Robert Scott, Yokieshill, and Mr John Ferguson, Brae of Cognach.

“The twelve cattle chosen for the experiment had been feeding together under the same conditions during the previous ten months on the farm of Mr Scott. Six were sent by the patent waggon, and six by the ordinary covered waggon. The trip was from Mintlaw Station, in Aberdeenshire, to King's Cross. The six cattle were put into the patent waggon on Thursday, 9th December, at 4 P.M. The racks were filled with eleven imperial stones of hay, and the tank with water, the latter holding forty-two gallons. The cattle were also supplied with 4 lbs. oil cake and 4 lbs. bruised oats each, and then left for the night. Next morning, the 10th instant, it was found they had eaten all the oil cake and about half the bruised oats. They were then supplied with 4 lbs. of cake each, in addition to the previous supply, and at 7 A.M. the other six cattle, which had during the night been fed with similar food in their byres at home as those in Reid's waggon, were trucked in an ordinary covered waggon, supplied with spring buffers. Both waggons were dispatched from Mintlaw with the train leaving at 7.55 A.M., arriving at Aberdeen at 11.40 A.M., and leaving it by the ordinary goods train starting at 12 noon. On arriving at Edinburgh the following midnight, the tank was found empty, and was refilled before departure. At York, about 1.30 P.M. on Saturday, the 11th, it was found almost empty, and refilled once more. The cattle reached their destination at 12 midnight, by which time the tank was again empty, and there was remaining only a few inches of water in the troughs. The six cattle in patent waggons had, therefore, been in it for fifty-six hours, being fifteen hours longer than those in the ordinary railway truck. They had during that time, after allowing for food remaining and waste, consumed seven imperial stones of

hay, 120 gallons of water, and, as near as the reporters could judge, about one-half of the cake and oats they had at starting. Their seeming dislike to the cake and oats may, perhaps, be accounted for by the fact that as they were given and left in the same trough as the water they soon became sodden and sour. The reporters who accompanied the cattle from their byres in Aberdeenshire to the metropolis, a distance of 582 miles, frequently examined them during the journey, and found that they lay down and rose up at pleasure.

"Mr Cherry, the veterinary surgeon, attached to the Home Office; Mr Colam, the secretary of the Royal Society for the Prevention of Cruelty to Animals; with Mr Broad, veterinary surgeon, who attended for the same society, and others interested, were present when the cattle were untrucked, and inspected them. One or two of the cattle were put back into the patent waggon and taken out again by way of showing them the *modus operandi*.

"It is the opinion of the reporters that the cattle from Reid's waggon stepped on to the platform at Holloway fresher, less jaded or feverish, and in better spirits than those from the ordinary covered waggon. They also retained in a more than ordinary degree that firm handle which they had before starting. They were sold at the Christmas market to-day by Mr George Dickson, both sixes in one lot, at the top rate of the market.

"From what the undersigned can judge, from the experience of a single journey, it seems to them that cattle would be far less deteriorated by being carried in waggons affording them shelter, food, and water, than in such as afford none.

"ROBERT SCOTT,

"JOHN FERGUSON.

"Euston Hotel, London, 13th December 1869.

"On the part of the Society Mr Broad, member of the council of veterinary surgeons (in the unavoidable absence of Professors Spooner and

Pritchard) examined both sets of animals on their arrival. Mr Cherry, veterinary surgeon of Scotland Yard, was present also. These gentlemen state as follows :—

“ We were present at Holloway Station on the arrival of the cattle train from Aberdeen on Sunday morning at from 12 to 1 o'clock A.M., on the 12th inst., on which occasion six oxen arrived in Reid's patent cattle waggon, and six similar oxen in a covered railway cattle truck. Each animal was untrucked in our presence, and a few retrucked in Reid's waggon, which operations were perfectly satisfactory. It is our opinion that the animals which had travelled in Reid's truck were in a much better condition than the other six in their external appearance and their freshness. The truck is a vast improvement of the ordinary cattle carriage, though we do not pledge ourselves that it is perfect. The cattle from Reid's van refused water upon landing, whilst the others drank eagerly from the platform troughs. One of the oxen in Reid's truck was lying down upon the arrival of the train, and all seemed at rest. There can be no question as to the immense superiority of a cattle truck which will supply its inmates with food refreshment on their journey, both as regards humanity and the proper condition of flesh, as an article of diet for man. And in both these particulars Reid's truck is the best cattle truck with which we are acquainted.

“ J. C. BROAD, V.S.

“ ARTHUR CHERRY, V.S.

“ Dec. 15, 1869.”

“ During a conversation with the judges, Mr Ferguson informed the Society that on the occasion of this journey a number of his oxen left Aberdeen for the London market in an ordinary truck, unprovided with food and water. These he had sold in Scotland to a dealer, who consigned

them to a London salesman, when their condition and value were equal to the animals sent by Mr Scott in every respect. Upon examining them at the Metropolitan market, he could hardly identify them, owing to their sufferings during transit; and the highest bid made for them in London was £2 per head less than the amount Mr Scott received for his, and did not exceed the amount paid to him in Scotland; so that a loss was sustained by the buyer. With regard to the animals sent in the trial trip, we are informed that the salesman insisted upon selling the twelve in one lot, because he would not separate those which had travelled in Reid's truck from the others, his interest being to secure the best price for the whole number; and by this means £33, 10s. per head was obtained.

"In conclusion, be it observed that the six animals, besides eating food, drank a little less than half-a-gallon of water per hour each during the entire journey, lay down and rose up at pleasure, and arrived in better condition than the other six oxen. In the argument of this new trial, therefore, we have the commercial advantage secured with the improved humanity; but had there been an entire absence of pecuniary success, the sanitary and moral inducements would effectually be proved, and would call for a better mode of transit of animals in our inland traffic."

If further proof were necessary to show that a monstrous evil exists in the manner we transport our live stock, and that that evil can be remedied, hundreds of cases could be given to show that even during the operation of the short-lived Provisional Order enforcing the law for watering and feeding live stock on railways, cattle and horses were detained more than forty hours without either food or water. An eminent Irish farming journal, printed since the foregoing remarks on cattle transit were written, says that recently—that is to say, while the "Order" was in force—"a number of valuable cattle and horses were detained fifty hours in the trucks without food or water, on a certain line of railway in Ireland, although the distance travelled was only 115 miles! It is no wonder we have disease among cattle; for mere flesh and blood could not stand such treatment without sustaining serious injury, and that is only one case among many, and we could tell of one where it required the most strenuous efforts of the officials of a well-known Scotch railway, to send a waggon-load of sheep 48 miles in 48 hours! We were led to believe that the facilities afforded by railways would be of great advantage to the breeders and feeders of live stock, and they are undoubtedly so, to a certain extent; but the advantages conferred by that mode of transit are in many instances more than counterbalanced by

those reprehensible features which have grown up with the system, and appear to be considered inherent to it. We have known what it was from personal experience to take cattle several hundred miles on foot, previous to the introduction of railways, and yet at the end of their long journey the cattle were as fresh as when they started. This arose simply from the fact that the animals were cared for while travelling on foot, which cannot be done now that they are boxed up in waggons, without any convenience for watering or feeding them. To remedy such a state of matters would be a true step in 'Cattle Defence;' in defence of the poor animals, as well as the interest of their owners, and of the community."

Before concluding our remarks on this important subject, we cannot refrain from giving the intelligent experience of an Irish farmer, as still further corroborative of our own expressed opinion and experience on this crying evil. Writing to the *Irish Farmer's Gazette*, he says :—

"I have read with interest, in the *Gazette* of the 8th inst., your humane article relative to the brutal treatment of the helpless animals consigned to the tortures of the present cattle traffic, and, with every desire to support your laudable work, I again take the opportunity to second your efforts, in bringing the disgraceful system of brutal barbarity before the minds of those persons whose duty and interest it is to join in every exertion to allay the suffering and mitigate the pain of those poor, dumb creatures, by whose nurture and barter thousands

—nay, millions—of us, farmers, gain our daily bread. Some of us grow rich by the calf at the tub; others by the cow in the stall; while more walk pleasingly through the white-studded fields, delighted in heart at the playfulness of the healthful lamb as it skips around its happy mother. How tenderly do we feeders treat those animals and minister to their daily wants, giving them every care and attention, with a view to comfort, as we prepare them for market. Doubtless it is the interest of every farmer to do so: why not, then, continue this care to the end? Had he done so, his attention would have followed the animal to the shambles, and there only have parted with, perhaps, his favourite ox, that must now die for man.

“Why should so many of us wish the unfortunate animal to die by inches, and advocate a protracted torture, ere death cuts short the pain of brutal treatment we inflict? Is it through blind ignorance or cruel, selfish interest that we thus act the savage? I should hope it is virtually neither, and rather say it is for want of understanding, power, and judgment, as the major part of us, farmers, will take little trouble to ascertain the actual loss we bear by the abuse and deterioration of our cattle in the hands of railway and steamship companies, through want of proper accommodation and attention during transit. Why, it would shock the most inhuman heart—if not inured to it—to witness the savage treatment received passively by those poor brutes from the hands of merciless men, who laugh and sport over the punishment they inflict. I have witnessed those inhuman scenes oftener than I could wish. I remonstrated with the pitiless men who enacted the brute; but their stony hearts were obdurate—so callous, that any effort of mine was quite powerless to move them to pity, to make an impression on a heart dead to all tenderness, where not a spark of humanity remained. Impossible to reform those men, who seem to exult in their merciless and disgraceful cruelty.

“In the winter months I generally send to the Liverpool market from 90 to 100 fat cattle, and, despite every exertion to have them treated kindly, they suffer seriously during the

journey. I have seen those cattle, when first put into the wagons, break into a sweat so profuse that it dropped from their sides like rain. What must be the effect of such excessive heat, brought on by fear at the frightful sights which surrounded them? This heat lasted for hours ere it cooled down. In the chill of night reaction set in, and their hot skins grew so cold that they trembled under the biting blast of a cutting north-east wind. How could animals suddenly taken from their warm house, and subjected to such treatment, escape disease? Impossible: an inward fire consumed them from that moment; the flame of fever was kindled, and disease fed on the vitals. No wonder the flesh should waste away so quickly, under the influence of such a destroying element as the flame of inflammation. Most truthful is the observation you make on bruises, caused by concussions and blows; and it is only a marvel that the losses caused by this deterioration of the meat are not multiplied by ten.

"I will tell you of a loss I had by this bruising. Some years ago I sent twenty nicely finished bullocks to the Bristol market. They had a bad passage, and consequently had been fearfully knocked about in the vessel—so much so that one of them died from the effects ere it reached the shambles. One only out of this lot of twenty walked to the market; eighteen of them were immediately slaughtered, and sold by the cwt., allowing a heavy reduction for bruises caused by the bad sea passage.

"I have known men—dealers who often bought from myself—to send cattle from the county Clare to London, without either food or drink during the journey, which is often of seventy hours' duration, including rest at Waterford; ay, and if they happen to fall into the hands of cruel drunkards, their distress is more than can be well conceived. Some time in February last my men told me of a scene they witnessed in a cattle yard at Waterford, as they conveyed my cattle to Liverpool.

"A lot of old stripper cows were driven into the yard by two Waterford drivers, usually known by the name of pen-boys. These cattle had walked from a fair some "thirty miles away,"



and they were there tied up without either food or water, and left to moan away their foot-sore pains during an inclement night of storm. Next day their treatment was no better, and my men, attracted by their wretched state of inanition, gave them what hay their cattle had left. Some of them ate it like famished wolves, while others parched with thirst could not swallow it. In this wretched condition were these cattle shipped from Waterford to Liverpool. Imagine their sufferings as they stood during twenty-seven hours bound to the ship's side, without a drink to quench their scorching thirst. Merciful goodness! it is even shocking to reveal those cruelties to a sensitive mind: Truly you have said 'they are a disgrace to humanity;' ay, and to the laws of a Christian country. Often have I tried to explain to those dealers the great loss they incur by not paying proper attention to their cattle, and especially by depriving them of food and water. I have also endeavoured to explain how the body wastes, and how flesh is lost in the absence of food, etc. ; but I might have affected a stone as much as those men, whose hearts are shut against feelings of any kind for animals. So long as they can make a countercharge for the loss in weight, they care very little for all else. Yes, the ready answer is, 'We have allowed for this reduction you speak of; for, when buying a beast, we say 6½ cwt. in Ireland make 6 cwt. in England, and tight on it to do it.' So you see the loss is borne between the feeder and consumer, and the community at large suffer by the barbarous cattle traffic, chiefly caused by imperfect transit and neglected laws.

"If there is only one rule—only one governing principle in man by which he endeavours to regulate all other actions in the advancement of his own fortune, let that one rule, that one principle, which is 'self-interest,' be taken into consideration for all, and be dispensed through the hands of power, justice, and mercy.

"There are some men (Shylocks) who call themselves *honest*, though, alas, they will trample on the dearest tie of friendship, and sacrifice the truest affection in the pursuit of wealth; but every man who can make known his wrong has the potent arm

of the law to protect him from his fellows ; while the plaintive moans, the inarticulate outpourings of agonising torture, the dumb appeal of those poor suffering animals to man are unheeded and disregarded by a pitiless and hard-hearted world.

"We boast of humanity—a rare and precious gem to be found amongst us. Oh, human nature ! worst of all natures in thy savage mood !

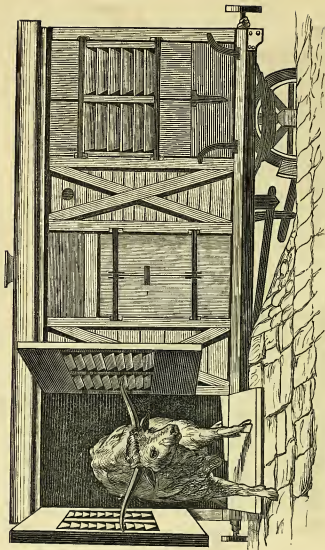
"Let us be guided by our hearts as well as by our heads, that we may no longer inflict on these poor passive creatures the brutal abuse of savages.

"Let it be *abattoir* at the principal seaports of Ireland, or reform in the transit by sea and by land ; let it be anything that will remedy the evil that exists—an evil so diabolical that its hellish qualities denude it of all that is human."

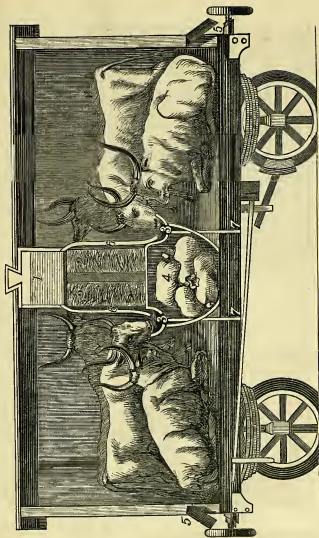
After such a stirring appeal as this, to the head, the hearts, and the pockets of all having to do with the transit of live stock, further writing on the subject is useless. Action is now all that is necessary—action not in the shape of legislative enactments, for they seem to be of little use, but action by the benevolent and humane agricultural and mercantile community, whereby funds may be realised for the carrying out of those inventions which have been tried and found worthy. How this can be done has been clearly pointed out, showing that present outlay would create future profits, that vastly increased wealth and creature comforts were sure to be the consequence, and that our duty as humane beings would be recognised and our obligations fulfilled by putting a stop for ever to the cruelty and loss created by

our present system of conveying dumb animals to and fro. These are weighty objects with which to begin a mercantile transaction, and are worthy the best efforts of the best of men.

That Britain should be behind in this after what its Parliament has already done, would be matter of regret; and from what is transpiring both in America and on the Continent, it is to be feared that such will be the case. The Austro-Hungarian Government is at present making trial trips with "Reid's first-class patent waggon without stalls" (*see* illustrations on following pages), for liberty to construct which sanction was obtained some time ago. The result of these trials is to be immediately acted on by a proclamation similar to one recently issued enforcing all railways to reconstruct their cattle waggons with air holes for ventilation—so it has been already announced. These trips are being made under the inspection of the Minister of Agriculture, along with several eminent Professors, and are to proceed from the Russian frontier to Vienna, a distance of over 700 miles. The American railways have also erected waggons on the same principle, about which the press of that country are writing in laudatory terms, and in no measured strain; and one of the largest of these have made an offer to purchase the liberty to use our patents. It is time, therefore, that we in this country were bestirring ourselves



REID'S FIRST-CLASS PATENT WAGON WITHOUT STALLS—Showing the untracing of Austrian Long-Horned Bulls.



REID'S FIRST-CLASS PATENT WAGON WITHOUT STALLS.  
*Showing the inside of one of them filled with large Austrian Long-Horned Bulls.*  
 1. Water Cistern; 2. Hay Rack; 3. Troughs; 4. Food Supply Store; 5. Door for Cleaning Purposes;  
 6. Water Pipes leading to Troughs; 7. Foul Pipes from Trough.

if we are even to keep pace with those nations. Our benevolence has hitherto been all-embracing ; let it once more, then, have that free vent which is necessary to save those animals, upon which we so much depend, from the brutalities of either our carrying companies or those they employ.

“ On Noah, and in him on all mankind,  
The charter was conferr’d, by which we hold  
The flesh of animals in fee, and claim  
O’er all we feed on, power of life and death.  
But read the instrument, and mark it well :  
The oppression of a tyrannous control  
Can find no warrant there. Feed, then, and yield  
Thanks for thy food. Carnivorous, through sin,  
Feed on the slain, but spare the living brute.”



# GRANTON WOOL SALES,

NEAR EDINBURGH.

THE reports of the Wool Trade, from all the manufacturing centres, are reported in the daily papers of the 4th inst. to have a hardening tendency for all descriptions; and a considerable scarcity of some of the favourite sorts is being seriously felt. Deep grown wedder wools, whether lustre or not, are very difficult to meet with; Hoggs are attracting considerably more attention than they were a week ago, and are bringing more money; and buyers are operating freely where they meet with a bale of wool to purchase, which only a short time ago were entirely neglected. With such small stocks on hand of either skin or fleece wools, a further rise in price is certain until the markets again become stocked, which on account of the quantity of wool being consumed, will not be for some time. Buyers, therefore, may not hold off with the expectation of buying at lower prices. The current prices of the different classes of wools are as follows:

Half-Bred Hoggs, . . . .	36/ to 43/
Cross-Bred Hoggs, . . . .	28/ to 34/
Half-Bred Wedder, . . . .	28/ to 33/
Cheviot Hoggs, . . . .	30/ to 38/
Cheviot Ewes, . . . .	28/ to 31/
Cheviot Hoggs, Unwashed, . . . .	26/ to 30/
Cheviot Ewes, Unwashed, . . . .	22/ to 28/
Laid Cheviot Hoggs and Ewes, . . . .	18/ to 28/
White Highland, Washed, . . . .	18/ to 23/
White Highland, Unwashed, . . . .	15/ to 20/
Laid Highland, . . . .	11/ to 13/

Public WOOL SALES held nearly every Month until  
September.

*Wools and Skins intended for our Sale of 2d June should be delivered as early as possible before that date.*

W. & G. REID,  
WOOL BROKERS, GRANTON HARBOUR.

# REIDS' PATENT SHEEP DIP,

FOR THE CURE OF

SCAB OR SHAB IN SHEEP, AND THE DESTRUCTION OF VERMIN.



THE requisites for a good dip are,—(1.) That it should be cheap; (2.) That it should destroy all vermin, and have a healing action on the skin; (3.) That it should not discolour or in any way impair the quality of the wool; and (4.) That it should produce no injurious effects, either on the animal which is dipped, or on those who perform the operation.

No dip can possess all the requisite qualities which contains any discolouring agent, such as extracts of



*W. & G. Reids' Advertisements.*

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coal or shale, which are injurious to the colour of the wool, and should be carefully avoided.

The dip which we now give to the public contains nothing injurious to the colour of the wool, or to the general health of the sheep; and, on the strength of our long experience of its many good qualities, we are able confidently to assert that it very much improves both the quality and colour of the wool, and also the general health of the sheep. In order to give every satisfaction to the public of the usefulness of the dip, and the curative qualities of the Scab Mixture, we submit a number of names of Landed Proprietors and Farmers who have used the different Mixtures. It is with confidence, therefore, that we now recommend it as a dip which is thoroughly destructive of insect life, while being a safe and efficacious remedy for the destruction of maggot and the prevention of fly-blow, if strictly used according to the direction sent to every purchaser with the invoice. We supply a list of

**P R I C E S :**

Dip or Pour,	.	.	12/ per 100 sheep.
	with Oil,	.	21/ per Do.
Scab Mixture,	.	.	3d. per sheep.
" "	with Oil,	.	4d. per Do.

N.B.—*A separate order requires to be given for Scab Mixture.*

**Casks Free of Charge.**

*Note.*—Our White Smear is preferable to Butter and Tar, when a smear of any kind is required; it keeps the wool beautifully white, and thereby enhances its value.

NAMES OF LANDED PROPRIETORS AND FARMERS  
WHO HAVE USED THE MIXTURE.

- Mr Duncan Clark, Succoth, Strachur.  
... James Kennedy, Dunbeath Mains, Wick.  
... James Johnstone, Knocksheen, New Galloway.  
... James Bryden, Holm of Dalquhairn, Castle-Douglas.  
... Robert Moffat, Ardsacloch, Thornhill.  
... William Somervail, Garryhorn, Dalmellington.  
... John Hamilton, Conish, Tynedrum.  
... John M'Cormick, Lockerkite, Dalheathie.  
... James M'Queen of Crofts, Dalheathie.  
... William Kennedy, Sherriemore, Kingussie.  
... Andrew Mitchell, Arnisdale, Glenelg.  
... William Reekie, Carterbaugh, Selkirk.  
... Alexander Rutherford, Stonypath, West Linton.  
... James Purves, Lochend, Thurso.  
... William Symington, Monkshead, Douglas.  
... William Purves, Thunderstoft, Thurso.  
... John Pretzel, Drave, Biggar.  
... John Brokie, Barns, Hawick.  
... David Allan, Gordon East Mains, Kelso.  
... James Williamson, Auchenroy, Dalmellington.  
... John Turnhull, Redlees, Alnwick.  
... Robert Shortreed, Altonburn, Kelso.  
... Robert Johnstone, Polmoodie, Moffat.  
... David Tweedie, Castle Abington.  
... David Welsh, 8 Panmure Terrace, Montrose.  
... Andrew Potts, Lewenshope, Selkirk.  
... Peter Stewart, Quinton-Hill, Garrigile, Alston.  
... James Elliot, Mouhaugh, Kelso.  
... William T. Linton, Mount Benger, Selkirk.  
... Robert Fleming, Chapelhope, Selkirk.  
... T. D. Sanderson, Toncehall, Wark, Hexham.  
... George Dixon, Mantlehill, Wark, Hexham.  
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**W. & G. REID,**

(Wool Brokers, Granton, Sole Manufacturers),

*Or their Authorised Agents.*



## TESTIMONIALS.

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*Especial attention is directed to the following Testimonials from Landed Proprietors and Farmers who have used the before-mentioned Dip, Scab Mixture, and white Smear, the latter of which is much superior to Siberian butter for mixing with tar, and is much lower in price. These useful articles have proved most efficacious in eradicating the evils for which they were intended; and it is hoped that stock-farmers who have not hitherto given them a trial, will now be induced to do so from the weight of evidence laid before them from gentlemen well able by experience to give an opinion in such important matters.*

---

*From JAMES SCOTT, Esq., Crescent, Hawick.*

*Crescent, Hawick, 25th April 1859.*

DEAR SIR,—In reply to your inquiry regarding the benefit done to my Sheep by the application of the bathing mixture you have supplied me with for the last three years, I beg to inform you it answers the purpose remarkably well for the cure of Scab, and keeping the Sheep free from vermin. I am inclined to use a much larger quantity this year.—I remain, yours very truly,

JAMES SCOTT.

---

*From R. MAKINS, Esq., Muirton, Berwick.*

*Muirton, Berwick, 29th Nov. 1859.*

DEAR SIR,—Having made trial of your Sheep Bath on a flock of six hundred sheep, I can have no hesitation in recommending it as being not only thoroughly effective in destroying all the vermin, but also perfectly harmless to the sheep; and, at the same time, as having a decidedly beneficial influence on the wool.—I am, yours truly,

R. MAKINS.

---

*From ROBERT CUNNINGHAM, Esq., Liffin, Girvan.*

*Liffin, Girvan, 31st Dec. 1859.*

MY DEAR SIR,—On my return home I found your note waiting me. I am now able and glad to tell you that your Sheep Dip sup-

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plied to me here is going to turn very well out. I have just had some of the lambs that were dipped with it brought in hand and examined. I am exceedingly well pleased with the colour and glossy appearance of the wool. Altogether I consider it of itself the best prepared dip I have yet tried. It is my intention to use a good deal more of it this incoming year.—I remain, my dear Sir, yours faithfully,

ROBERT CUNNINGHAM.

---

*From JOHN RAMAGE, Esq., Swordle, Bonaw.*

SWORDLE, BONAW, 5th March 1860.

SIRS,—In answer to your inquiries, I have to state that I used your Dipping Composition last year, and have much pleasure in stating it has given me every satisfaction. I smeared part of my Sheep, the remainder I dipped with your Composition, and I find the Sheep dipped have wintered better than the smeared ones, and are also in better condition.

This year I intend to dip the whole of my Sheep with your valuable Composition.—I am, yours truly,

JOHN RAMAGE.

---

*From DOUGLAS WATSON, Esq., Thurster, Wick.*

THURSTER, WICK, 22d June 1860.

DEAR SIRS,—Having now clipped my Sheep, weighed and examined the quality and colour of the wool bathed with your Sheep Dip, I am now satisfied it is the best bath I have seen used for giving lustre, weight, and colour to a clip of wool, and I may mention it had a great advantage over the other bath I tried against it, in a severe winter like the last. It keeps the snow and hear-frost from freezing to the wool. I consider the bath well worth recommending to others.—I remain, yours very truly,

DOUGLAS WATSON.

---

*From PATRICK STEWART, Esq., Middlegill, near Moffat.*

MIDDLEGILL, 19th Dec. 1860.

DEAR SIRS,—With regard to your Pouring Mixture, from inquiries I made at my Shepherds last week, they corresponded in one opinion, that "It was the best mixture we had ever applied."

PATRICK STEWART.

*W. & G. Reids' Advertisements.*

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From W. ROAN, Esq., 25 Chapel Walk, Liverpool.  
25 CHAPEL WALK, LIVERPOOL, 1st Dec. 1868.

Messrs W. & G. REID,

GENTLEMEN,—Please send me a 10-gallon cask of your best Tobacco Juice by passenger train. I have tried your Pouring Mixture and Dip. It proves satisfactory. I will give you a big order next season. Send the invoice away to-morrow, and oblige, yours respectfully,

p. W. ROAN,  
T. ROSS.

---

From JOHN GORDON, Esq., Braelangwell, Invergordon.  
BRAELANGWELL, INVERGORDON,  
Jan. 26th, 1869.

Messrs W. & G. REID,  
Granton Wool Store, Granton, Edinburgh.

MY DEAR SIR,—Having used your Sheep Dip, I have great pleasure in saying that it has given satisfaction. It only requires to be thoroughly known to be universally used.—I am, my dear Sirs, yours truly,

JOHN GORDON.

---

From DAVID TWEEDIE, Esq., Castle Crawford, Abington.  
CASTLE CRAWFORD, ABINGTON, 15th June 1869.

Messrs REID, Granton,

DEAR SIR,—You sent me a trial of your Improved Bath for Sheep, in quantity equal to bathe 1000 sheep, on condition that it was to cost me nothing if it did not kill the keds and serve the purposes intended. I am glad to say it was entirely successful, and I now ask you to render my account. It was used in January, and till this the hirsle is almost free of vermin.—Yours very truly,

DAVID TWEEDIE.

---

From THOMAS ELLIOT, Esq., Knockdon, Straiton, Ayrshire.

KNOCKDON, STRAITON, AYRSHIRE, 30th June 1869.

Messrs REID, Wool Brokers, Granton.

MY DEAR SIR,—I applied the Improved Dip I had from you in the end of March, in bathing six hundred Hogs. On examining them a week after, I found the keds all dead, and they have remained clear of vermin ever since (clipping time), though pasturing with Ewes that were dipped in September.

I have bathed sheep for thirty years, and have therefore tried the most of the Dips in use. I can with confidence recommend

*W. & G. Reids' Advertisements.*

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Reid's Improved Dip as equal to any in *efficacy*, and quite superior in imparting that *fine Rich White Colour* which the fleece retains, and *softness of touch* so necessary in getting up a clip in a proper manner.

I will give you a large order in August.—I am, gentlemen,  
yours faithfully, THOMAS ELLIOT.

---

From JAMES HORNE, Esq., Stirkoke House, Wick.

STIRKOKK HOUSE, WICK, 30th June 1869.

DEAR SIRS,—I have great pleasure in stating, that having used your Improved Sheep Dip for about fourteen years, it has given me very great satisfaction. I consider it to be the best Dip for destroying vermin, and giving the wool a good colour; and I believe that the use of it has been, to a great extent, the means of my wool giving generally the top price at your sales.—Your obedient servant,  
JAMES HORNE.

---

From Messrs JOHN PATON, Son, & Coy, Manufacturers, Alloa.

ALLOA, 18th August 1869.

Messrs W. & G. REID, Granton,

We have sorted lots 93 and 94 bought at your last public sale, and find the colour very good.

NOTE.—The wool referred to was part of Stirkoke clip, and bathed with Reid's Sheep-Dip.

JOHN PATON, SON, & Coy.

---

From W. STEWART, Esq., Mosspebble, Langholm.

MOSSPEBBLE, LANGHOLM, Oct. 30th 1869.

MY DEAR SIRS,—I have dipped 100 sheep with the stuff you sent me, and I have every reason to believe that it has had the desired effect. If it continues to keep them clean I will have much pleasure in giving you an order for another year, as I have no doubt that it is the best Dip that I have ever used.—Yours sincerely,

W. STEWART.

---

From ROBT. SCOTT, Esq., Kinningshall.

KINNINGHALL, 3d Feb. 1870.

DEAR SIRS,—I inclose P.-O. O. in payment of inclosed account, which please discharge and return at your earliest convenience.

As regards the Dip, I may mention that it has answered the

*W. & G. Reids' Advertisements.*

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purpose exceedingly well, and the sheep are all quite clean.—I am,  
dear Sirs, yours truly,

Messrs W. & G. REID,  
Granton.

p. ROBT. SCOTT.  
ALEX. SCOTT.

---

*From DAVID ALLAN Esq., Gordon East Mains.*

GORDON EAST MAINS, 4th Feb. 1870.

DEAR SIRS,—I have enclosed a cheque for the sum of £6, 7s. 3d.  
in payment for your Sheep Dip. I think it has answered the end  
very well. The sheep are keeping all right, and I will take it for  
1500 sheep next season.—Yours truly,

DAVID ALLAN.

---

*From Wm. M'INTOSH, Esq., Murra Bower, Wick.*

MURRA BOWER, 7th Feb. 1870.

GENTLEMEN,—Inclosed I beg to send you a draft in your favour  
for £1, 4s., being amount of account for Sheep Dip received.

I cannot say as yet whether your Sheep Dip will increase the  
growth of the wool, but it keeps them quite clean.—Yours truly,  
Messrs W. & G. REID, p. Wm. M'INTOSH.  
Wool Brokers, Granton, C. L.

---

*From T. SMITH, Esq., Mollington Farm, Chester.*

MOLLINGTON FARM, CHESTER, 22d Feb. 1870.

Messrs W. & G. REID,

GENTLEMEN,—Please send me sufficient of your preparation to  
dip 200 Sheep.

I have pleasure in stating that it answered *very well* last year.

My halliff, who has a thorough practical knowledge of Sheep, is  
much pleased with the result.—Yours truly,

T. SMITH.

---

*From THOMAS AITKEN, Esq., Lestonshiels.*

LESTONSHIELS, 5th April 1870.

Messrs W. & G. REID,

DEAR SIRS,—I have much pleasure in stating that the Sheep Dip  
I got from you has proved highly satisfactory; and I think it the  
best Sheep Dip that I have used.—Yours truly,

THOMAS AITKEN.

## *W. & G. Reids' Advertisements.*

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*From* THOMAS WALKER, Esq., Lochton.

LOCHTON, by INCHTURE, 10th June 1870.

DEAR SIRs,—Be so good as send me Dip for 200 sheep. What I used last year of yours has given me the greatest satisfaction.—  
I am, yours truly, THOMAS WALKER.

---

*Letters addressed to* MESSRS R. M'OMIE & Co., Brechin, *Agents.*

TILLYTEIGHILL, 14th June 1870.

DEAR SIRs,—In reply to yours of the 12th inst., I have been using the Messrs Reids' Sheep Dip for two seasons, and find it both cheap and efficacious in cleaning the sheep and improving the wool; and should I require more this season, I will order it direct from you.—Yours truly, DAVID WELSH.

---

*From* DAVID GIBB, Esq., Bridge of Dye.

BRIDGE OF DYE, 20th June 1870.

DEAR SIRs,—The Messrs Reids' Sheep Dip which I got last season pleased me well, and should I require more this season I will order it from you.—Yours respectfully,

DAVID GIBB.

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*From* S. ANDERTON & SONS, East Brook Mills, Bradford.

EAST BROOK MILLS, BRADFORD, 5th July 1870.

MESSRS W. & G. REID, Granton,

GENTLEMEN,—The samples of wool, which we send you by this Post, are taken from sheep prepared for the winter with your "Sheep Dip." As requested by you, we have scoured the wool in the usual way, and we find the colour and quality perfect, and we strongly recommend the use of your Dip.—Yours respectfully,—

S. ANDERTON & SONS.

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Reids' Sheep Dip, ordered by W. E. OLIVER, Esq., Glenforra, Aros, Mull, for 10,000 Sheep, in August 1870.

Mr Oliver writes, on 9th November: "We are busy dipping just now, and have splendid weather for it. I am glad to say my shepherds are well pleased with your Dip." W. E. O.

---

*From* JOHN AINSLIE, Esq., Hillend, Edinburgh.

HILLEND, EDINBURGH, 19th Oct. 1870.

MESSRS W. & G. REID, Granton,

DEAR SIRs,—I have much pleasure in testifying to the efficacy



*W. & G. Reids' Advertisements.*

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of Reid of Granton's "Sheep Dip;" having used it for the last two years, I have found it second to none; and I have tried several of late.—I am, yours, etc.,  
JOHN AINSLIE.

---

From G. S. DOUGLAS, Esq., Riddletonhill, St Boswells.

RIDDLETONHILL, St BOSWELLS, 19th Nov. 1870.

Messrs W. & G. REID,

GENTLEMEN,—I inclose P.-O. order in payment of the Dip. I like it very much, and will have a larger quantity in the Spring,—  
I am, yours faithfully,  
G. S. DOUGLAS.

---

From Captain DUNCAN STEWART, R.N., of Colonsay.

COLONSAY, PORTASKAIG, 8th Dec. 1870.

Messrs W. & G. REID, Granton,

SIRS,—Herewith I send you cheque on Royal Bank of Scotland in payment of Sheep Dip, for which many thanks. The sheep are looking much the better of it, and I can observe no sign of any scab or vermin since the Dip was used.—Yours truly,  
DUNCAN STEWART.

---

From JOHN L. MURRAY, Esq., Heavyside, Biggar.

HEAVYSIDE, BIGGAR, 14th Dec. 1870.

Messrs W. & G. REID, Granton,

DEAR SIRS,—I have your note of yesterday, and I am highly pleased with your Dip, and intend using it again next season.—  
Yours very truly,  
JOHN L. MURRAY.

---

From JAMES LINDSAY, Esq., Whitcastle, near Lockerbie,

20th Dec. 1870.

Messrs W. & G. REID, Granton,

DEAR SIRS,—Herewith I inclose you a bank cheque in payment of Sheep Dip, which, I am glad to say, has given me perfect satisfaction.—Yours truly,  
JAMES LINDSAY.

---

From WALTER GRAHAM, Esq., Knock, Salen, Mull,

20th Dec. 1870.

Messrs W. & G. REID, Granton,

DEAR SIRS,—You have inclosed bank letter of credit in payment of your account for Sheep Dip. My shepherds have expressed themselves as much pleased with your Dip.—I remain, truly yours,  
WALTER GRAHAM.

*W. & G. Reids' Advertisements.*

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*From JOHN ARRES, Esq., Hallrule, Hawick,*

22d Dec. 1870.

Messrs W. & G. REID, Granton,

DEAR SIRs,—I think your Sheep Dip has answered its purpose very well.—Yours truly,

JOHN ARRES.

---

*From JOHN JOHNSTONE, Esq., Kingledores, Biggar.*

KINGLEDORES, Biggar, 28th Dec. 1870.

Messrs W. & G. REID, Granton,

DEAR SIRs,—I inclose you herewith a cheque in payment of Dip account.

I did not witness the use of it myself, but my manager informs me that it destroyed the vermin instantly,—I am, yours truly,

JOHN JOHNSTONE.

---

*From ANDREW BOA, Esq., Dalton House.*

DALTON HOUSE, 28th Dec. 1870.

DEAR SIRs,—I send receipt for cheque for value of wool sold by you for Mrs Collingwood.

I am sorry to trouble you, but I will be obliged if you will alter the note, writing a new one headed as I have sent, and also a receipt by itself for the Dip. The Dip which I had from you last year answered its purpose very well. The hogs were dipped in November, and when clipped in June were remarkably clean and free of vermin, and so far as I could judge, the wool appeared to be a fine colour. I have used your Dip this season again.—I remain, dear Sirs, yours very truly,

ANDREW BOA.

---

*From WILLIAM WATERS, Esq., Ballachy.*

BALLACHY, 29th Dec. 1870.

Messrs W. & G. REID, Granton,

DEAR SIRs,—I inclose a draft for your cash, and I am well pleased with your Dip. I think it a proper mixture for the purpose.—Your obedt. Servant.

WM. WATERS.

---

*From Messrs R. & D. CAMPBELL, Whitehaugh, near Hawick.*

WHITEHAUGH, near-HAWICK, 1870.

Messrs W. & G. REID, Granton.

DEAR SIRs,—In answer to your inquiry regarding your Sheep Dipping Composition, it gives me much pleasure to say that we are perfectly satisfied with it. It does not in the least injure the

*W. & G. Reids' Advertisements.*

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sheep, and we think it has a beneficial effect upon the colour and quality of the wool; and that it entirely destroys all the vermin that may be alive on the sheep at the time of its application.—We remain, dear Sirs, yours truly,

R. & D. CAMPBELL.

---

*From THOMAS CARRUTHERS, Esq., Longburnshiel.  
Longburnshiel, 12th January 1871.*

Messrs W. & G. REID, Granton,

DEAR SIRs,—I have much pleasure in informing you that, having used your Sheep Dip, it has given me great satisfaction. When dipping this season I made a trial of three different Dips, that are much used. I found your Dip to cause immediate death to the keds and other vermin. The other Dips did not kill the vermin nearly so quickly nor so well. I am perfectly satisfied that your Dip is the best I have ever applied.—I remain, yours truly,

THOMAS CARRUTHERS.

---

*From JOHN MOFFAT, Esq., Craik.  
CRAIK, 16th January 1871.*

Messrs W. & G. REID, Granton,

DEAR SIRs,—Regarding your Sheep Dip, I have great satisfaction in stating that it has pleased me very well indeed; there is no vermin on the sheep at present.—I am, yours sincerely,

JOHN MOFFAT.

---

*From JOHN THOMSON, Esq., Newton Stewart.  
66 PRINCES STREET, NEWTON STEWART, 1st February 1871.*

DEAR SIRs,—Inclosed cheque for £16 stg. as payment of Dip. I expect to sell a considerable quantity next year by beginning in time. The Dip pleases well.—I am, your obedt. Servant,

JOHN THOMSON.

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*From W. GRIEVE, Esq., Skelfhill.  
SKELPHILL, 3d Feby. 1871.*

Messrs W. & G. REID,

DEAR SIRs,—I am happy to inform you that the sheep dipped with your composition in October are at this date looking very well, and appear to be quite free from vermin, and their wool well grown.—I am, very truly yours,

W. GRIEVE.

## *W. & G. Reids' Advertisements.*

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From WALTER ELLIOT, Esq., Hermitage.

HERMITAGE, 7th Feby. 1871.

DEAR SIRs,—The Dip I got from you last year I used here and at Glencannel Mill. According to the report of my manager there, it answered the purpose well, and I can say it has done equally well here.—Yours truly,

WALTER ELLIOT.

From WILLIAM E. OLIVER, Esq., Glenforsa, Aros.

GLENFORSA, AROS, 8th February 1871.

Messrs W. & G. REID, Granton,

DEAR SIRs,—With reference to your Sheep Dip, I have much pleasure in stating, that after using it for the first time in 1860, I was as thoroughly satisfied with its merits as a valuable and safe Dip that I have used it less or more ever since. And now that you have improved it in the manner you have done, I consider it as near perfection as a Dip can be.

My sheep—over 10,000—dipped with your Dip last autumn, are looking remarkably well; they are quite free of vermin, and are particularly well-grown in the wool, for hill sheep, at this season of the year.—I am, dear Sirs, yours faithfully,

WILLIAM E. OLIVER.

JAMES LINDSAY, Esq., Whitcastles, Lockerhy, writes: "The Dip has given me perfect satisfaction."

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*Directions for the use of Reid's Improved Sheep Dip for the Cure of Scab, and for the Destruction of Keds, Tick, Lice, etc.—* Before using, without taking off the hoops, remove one end of the cask. Stir well its contents; take thirty pounds of the Mixture; dissolve it in four gallons boiling water; add thirty-four gallons cold water—which is a Dip sufficient for fifty Sheep. The Sheep affected with Scab must be kept in the bath from two to three up to five minutes, as the different stages of the disease require; while care must be taken to keep the head of the animal from becoming submerged. Allow the moisture to run well off the Sheep, in order that the quantity may dip the number stated.—N.B.—If the Sheep affected with Scab are not cured within fourteen days after being dipped, a second dressing should at once be applied.

*Advertisements.*

---

## TURNIP SEEDS,

*Saved with the greatest care, from the Produce of  
Transplanted Bulbs.*

OF PURPLE-TOP SWEDES, GREEN-TOP YELLOWS, and other varieties, we are again prepared to send out as fine stocks as for years we have been supplying, with most satisfactory results, to many large consumers throughout the country.

### THE FOSTERTON HYBRID TURNIP

Is a most valuable Green-Top Yellow variety to succeed the White Globes for early winter consumption; and at that season there is perhaps none better adapted for *folding Sheep* upon, as it grows mostly above ground. If lifted early, and stored, it may be safely depended upon for use as late as March.

The *true* FOSTERTON attains a great size, and yields a heavy crop, is hard and firm, of a fine shape, and is not subject to mildew.

\*.\* Our Seed of it has been supplied by the Gentleman who originally raised this variety, and as he still scrupulously selects only the finest Bulbs from which to save Seed, his Stock may reasonably be considered as second to none.

---

PRICED CATALOGUES OF FARM AND GARDEN SEEDS, &c.,  
ON APPLICATION.

---

N.B.—Seeds delivered, Carriage Paid, and 5 per cent. off  
Catalogue Prices allowed for Cash.

---

## DRUMMOND BROTHERS,

(Sons of Mr Peter Drummond of Stirling,)

SEEDSMEN, NURSERYMEN, AND FLORISTS,  
52 GEORGE STREET,  
EDINBURGH.

R. T. MACKINTOSH,

*SEED MERCHANT,*

12 MELBOURNE PLACE,

EDINBURGH,

*Begs respectfully to intimate that  
his Priced List of Agricultural,  
Garden, and Flower Seeds, for the  
present Season, is now ready.*

---

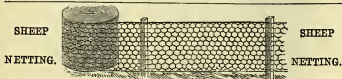
Copies may be had, Post Free, on  
Application.

*Advertisements.*

**FURNISHING IRONMONGERY WAREHOUSE,**  
70 AND 71 PRINCES STREET, EDINBURGH  
(OPPOSITE THE MOUND.)

**JAMES MILLER**

**H**AS now in Stock a Large and Varied Assortment of HOUSE FURNISHING IRONMONGERY, of Superior Quality, and on the most Moderate Terms. CLOSE and OPEN FIRE KITCHEN RANGES, of Excellent Workmanship, and Latest Improvements; GRATES, FENDERS, GAS LUSTRES, IRON BEDSTEADS, BATHS, TABLE CUTLERY, BEST SHEFFIELD PLATED SPOONS, FORKS, &c., &c. Agent for MILNER'S FIRE-RESISTING SAFES AND BOXES. Manufacturer of the AMERICAN PUTNAM WRINGING MACHINE.



**GALVANIZED WIRE NETTING FOR SHEEP DIP.**

**T**HE Advertisers manufacture large quantities of this Netting, and of  $1\frac{1}{2}$  inch mesh for Rabbits, etc., and can supply the largest Orders, either from Stock, or on the shortest notice. Prices of Sheep Netting, 3 feet wide and Galvanized, 6d., 7d., and 8d. per Yard, according to strength; or, with three strands (one along the centre),  $\frac{1}{2}$ d. per Yard additional. **G. & T.** supply large quantities of their special quality for temporary divisions—Price only **SIXPENCE per YARD.**

**GIBSON & TAIT, Bainfield Iron and Wire Works, Edinburgh.**

**NEW VENT DAMPER (Registered).**

**D**AVID FOULIS, SMITH and IRONMONGER, 61 GEORGE STREET, EDINBURGH, begs to call attention to the great advantages of this New DAMPER for Room Vents over all the old sliding kinds. The Prices are 4s. 6d., and 6s. 6d. The Advantages are—

The Great Ease in Opening and Shutting.

A Cure for Back-smoke or Down-draught.

The Impossibility of its Getting Out of Order.

A much Freer Exit for the Smoke.

A Preventative for Rain or Hail Getting Down.

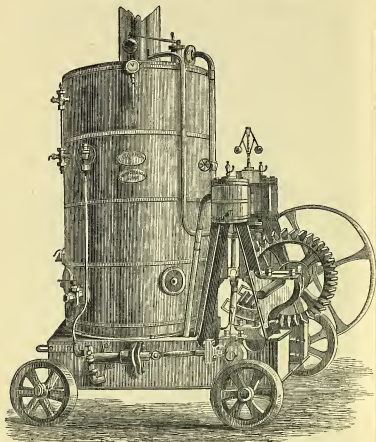
Kinnaird Grates, with Bricks, and New Registered DAMPER, from 13s. 6d. Kitchen Ranges, Dining-room, Drawing-room and Parlour Grates. One of the Largest and Finest Assortments in the City. *Inspection Invited.*

**DAVID FOULIS,**

**SMITH AND FURNISHING IRONMONGER,**  
61 GEORGE STREET, EDINBURGH.

*Advertisements.*

**JOHN GIRDWOOD**  
*ENGINEER,*  
GREENSIDE ROW, EDINBURGH.



Improved Vertical Engines and Field's Patent Boiler.



### *Advertisements.*

THESE ENGINES and BOILERS attached, may be either Stationary or Mounted on Wheels, so as to make portable, and are well adapted for Agricultural purposes. The following are some of the points in which the Field Boiler is superior to all other Boilers :

- 1.—It takes up but a very small space.
- 2.—It uses less fuel than other Boilers.
- 3.—It is cheaper than any other Boilers doing the same amount of work.
- 4.—There is no leakage from expansion and contraction of tubes, as in ordinary Vertical Boilers.
- 5.—No brick-work, setting in fire-bricks, or expensive brick chimneys required.
- 6.—No priming takes place, which is the general complaint against other Vertical Boilers.
- 7.—There is perfect self-acting Circulation, which keeps the Tubes clean and allows all sediment to collect in the water-space round the fire-box.
- 8.—The whole of the heating surface is exposed to a temperature of about 3000 degrees.
- 9.—Every part of the "Field" Boiler is easily comeatable for examination and repairs.
- 10.—The Tubes act as fusible plugs in case of shortness of water, and thereby prevent explosion.

#### **"FIELD'S" PATENT TUBES.**

THESE tubes have been largely introduced into Cornish and other fixed boilers, where they produce a considerable saving of fuel, and likewise enable boilers, otherwise short of steam, to keep the full pressure of steam readily. They are generally fixed in the flue behind the bridge, and this can be easily accomplished without removing the flue itself, or any of the attachments, or disturbing the setting of the boiler.

The saving effected by the application of these tubes to the Cornish and other boilers has been found to average from 15 to 20 per cent., in proportion to the number of tubes inserted.

The fact of there being now 450 "Field" Boilers at work, and upwards of 66,000 of these tubes in use, is a sufficient guarantee of their value and efficiency.

*For Prices and further particulars apply to*

**JOHN GIRDWOOD,**  
**ENGINEER,**

AGENT FOR EDINBURGH AND DISTRICT,

26 GREENSIDE ROW, EDINBURGH.

## DIRECTIONS

*for the use of instruments employed in the*

# CURE OF STURDY.

---

WHEN a sheep is affected with sturdy, the seat of the disease may be detected by the animal's movements, as well as by pressing at different parts of the skull. As a rule, a sheep suffering from sturdy, walks, runs, or totters in a straight line, with elevated head, whenever the bladder worm or hydatid is situated in the middle of the brain; and it hesitates in moving, falls, and even rolls over, when the hydatid is at the back part of the skull, or so-called crown of the head, and beneath that part which is between the horns in horned sheep. When the animal turns constantly to the right or to the left, the hydatid is situated towards the forehead on the right or left side according to that to which the animal turns. As a general rule, if the sturdy be at all severe, the position of the bladder is detected by feeling for that portion of the skull which may be soft and thin, owing to absorption from pressure of the sac beneath.

Having determined the position of the distended parasitical sac, the wool around is clipped, and if the bone over it be thick, the borer, provided with a nut which may be screwed up or down, is employed, and the nut is placed at such a distance from the point of the instrument as to allow of perforation of the skull and perforation of the bag, without going deeper and injuring the sheep. If the skull be very thin, the trocar is only used, and steadily pushed in; the canula or tube being pressed, and the stylet withdrawn so soon as it is punctured, in order to allow of the escape of fluid through the canula. Whether the trocar be used alone or a passage prepared for it by the borer, as the fluid is drawn off by the canula, the bladder appears at the opening; it is generally essential, and always advisable to use the syringe to draw the liquid out through the canula; and having done this, the forceps are used to lay hold of the portion of bladder which appears in the opening in the skull and it is withdrawn. The bladder being removed, the wound is cleaned, and protected by a bandage, or simply by a little tar. The above instruments in cases, complete, 14s., 17s. 6d.

MANUFACTURED BY

**DAVID MACKENZIE,**

VETERINARY INSTRUMENT MAKER,

58 SOUTH BRIDGE,

EDINBURGH.

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*Priced Catalogues of Veterinary Instruments Free on Application.*

## Advertisements.

# THE SCOTTISH STEAM CULTIVATION & TRACTION CO., LIMITED.

Incorporated under "The Company's Acts," 1862 and 1867.

Capital—£50,000, in £5000 Shares of £10 each.

Deposit—£1 per Share on Application. £1 per Share on Allotment.

Balance on Call as business advances.

### Directors.

The Right Hon. the Earl of Dunmore,	Stirlingshire.
The Right Hon. the Lord Elphinstone,	Mid-Lothian.
Sir John Murray, Bart. of Philiphaugh,	Seikirkshire.
Wm. Dingwall Fordyce, Esq. of Brucklay, M.P.,	Aberdeenshire.
Alex. Bethune, Esq. of Blebo,	Fifehire.
George Binning Home, Esq. of Argaty,	Perthshire.
John Robertson, Esq. of Blairbeth, or Newhall Factory, Glasgow,	Lanarkshire.
William Gray, Esq., Southfield,	Mid-Lothian.
David Roughhead, Esq.,	Haddingtonshire.

### Solicitors.

Curror & Cowper, India Buildings, Edinburgh.

### Bankers.

The British Linen Company's Bank, } and  
The National Bank of Scotland, } Branches.

### Auditor.

John Turnbull Smith, C.A., Edinburgh.

### Sharebrokers.

Rhenius & Lawrie, 4 St Andrew Square, Edinburgh.  
Thomas Miller & Sons, 72 Princes Street, Edinburgh.  
John Dykes, jun., 79 St Vincent Street, Glasgow.  
W. & R. Ritchie, Dundee.

### Secretary.

David Curror, India Buildings, Edinburgh.  
Registered Office—India Buildings, Edinburgh.

### PROSPECTUS.

The objects of this Company are—the performance by Steam Power of the operations of Husbandry, of Carriage, and of Traction, and of other operations to which steam power can be applied.

In prosecution of these objects, the Company intends to acquire and let out Steam Engines, Tackling, Implements, and other apparatus requisite for Ploughing, Grubbing, Harrowing, Rolling, Reaping, Leading, Thrashing, and doing all the other operations of Husbandry, including the heavier Carriages of the Farm.

The Directors feel assured that the tariff of charges can be fixed at a considerably less rate for work done by their engines than by horse-power, while the work will be better done.

Prospectuses and Forms of Application for Shares may be obtained at the Bankers', Brokers', Solicitors', and at the Office of the Company; and Copies of the Memorandum and Articles of Association may be inspected in the hands of

D. CURROR, Secretary,  
at the Registered Office, India Buildings, Edinburgh.

*Advertisements.*

---

MOUAT & SHEARER,

LATE GORRIE & MOUAT,

Clothiers, Outfitters, & Men's Mercers,

62 NEW BUILDINGS, NORTH BRIDGE,

EDINBURGH.

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Volunteer, Military, & Naval Uniforms,

*In all the Varied Styles.*

LADIES' RIDING HABITS.

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MOURNING SUITS made on the shortest Notice.

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UNIFORMS AND LIVERIES,

Hats, Caps, Stocks, Gloves, Braces, Plain and Fancy Silk and  
Satin Scarfs, India Pocket Handkerchiefs and Fancy Neck Ties.

Travelling Plaids and Railway Wrappers,

SILK AND ALPACA UMBRELLAS,

GENTLEMEN'S HOSIERY & UNDERCLOTHING,

PLAIN AND DRESS SHIRTS

OF SUPERIOR QUALITY AND IMPROVED SHAPE.

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BOYS' DRESSES IN EVERY VARIETY MADE UP  
WITH TASTE AND ECONOMY.

*Advertisements*

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# SCOTTISH TWEEDS

IN

PERFECTION.

*Sold in Lengths, or Made-Up into Suits, on a*

*Few Hours' Notice.*

BY

MURRAY & HOGG,

CLOTHIERS,

33 GEORGE STREET,

EDINBURGH.

*Advertisements.*

# HUGH PATERSON & CO.,

CARPET MANUFACTURERS,  
Cabinet-Makers and Upholsterers,  
GENERAL HOUSE FURNISHING WAREHOUSES,  
75, 76, 77, 79, SOUTH BRIDGE (Adjoining the University), Edinburgh.

**H**UGH PATERSON & CO. beg to return their best thanks to their Friends and the Public for the liberal support they have hitherto received. They respectfully solicit the favour of a visit from intending Purchasers, who will find the various Departments replete with every requisite, **at the most Moderate Prices**, and the whole Stock much larger and more varied than could be anticipated from the external appearance of their premises. The steady increase of their business is the best proof of their Goods and Workmanship having given general satisfaction. They keep experienced Cabinetmakers and Upholsterers for manufacturing to order and design, and for every kind of House-Jobbing, Packing, Removing Furniture, etc.

*Designs and Estimates Furnished. Country Orders Carefully Attended to.*

## CARPET AND FLOORCLOTH DEPARTMENTS.

Acknowledged to be the Best and Cheapest Selection of Carpets and Floorcloths in Edinburgh. Axminster, Brussels, Tapestry, 3-Ply Kidderminster and Scotch Carpets, Floorcloths, Sunbeams, Matting, etc.—Patterns and Prices on Application.

## CURTAIN FABRIC DEPARTMENT.

This Department is Complete, and contains every Novelty of the Season in all classes of Goods. Cornices for Straight and Oriel Windows, in Gilt, Brass, Wood, etc. Drapery Fringes, Curtain Holders, Cordis, Silk Borderings, etc. Ladies' Needlework Tastefully Mounted on Chairs, Ottomans, Fender Stools, Tea Trays, Banner Screens, etc., at very Moderate Prices.

## CABINET FURNITURE DEPARTMENT.

Made of Thoroughly Seasoned Timber, in their own Workshops, under Special Superintendence. **DINING-ROOM:** SIDEBOARDS—In Mahogany, Oak, and Walnut, from £10, 10s., £12, 10s., to £25, 10s. **TELESCOPE TABLES**—In Mahogany, Oak, and Walnut, from £7, 15s., £9, 10s., £12, 10s., to £18, 10s. **SOFAS**—In best Haircloth, £3, 15s., £4, 10s., £6, 10s., £8, 10s. £10, 10s.; in Leather Cloth, £4, 4s., £5, 10s. **EASY CHAIRS**—In Best Haircloth, £2, 2s., £2, 15s., £3, 15s., £4, 10s., £5, 10s., £6, 15s.; in Leather Cloth, 50s. to 75s. **SMALL CHAIRS**—In Best Haircloth, 18s. 6d., 21s., 22s. 6d., 25s. 6d., 35s., 45s., 50s.; in Leather Cloth, 15s. 6d., 18s. 6d., 30s. In Morocco, 35s., 42s. 45s., 50s. Walnut Drawing-room Suites, Comprising Couch, 2 Easy Chairs, 6 Small Chairs—in Damask, £18, 13s. to £18, 18s. In Rep, £18, 13s. to £25, 10s.

## BEDROOM FURNITURE, IRON & BRASS BEDSTEAD DEPARTMENT.

**WARDROBES**—Single, Two-Doored, and Three-Doored, in Mahogany, Walnut, Maple, Birch, Oak, Ash, £8, 10s., £10, 10s., £13, 13s., £14, 14s., £15, 15s., to £27, 10s. **ELIZABETHAN BEDSTEADS**—In Mahogany, Walnut, Maple, Birch, Oak, Ash, £6, 10s., £7, 10s., £8, 10s., £9, 10s. to £12, 12s. **PARISIAN BEDSTEADS**—Staffed Head-Board, £8, 10s. to £15, 15s. **CHESTS OF DRAWERS**—In Mahogany, Walnut, Birch, Oak, Maple, Ash, 63s., £3, 15s., £4, 15s., £5, 15s., £6, 15s.; Painted, 35s., 50s. **MARBLE WASHSTANDS**—35s., 50s., 60s. to 150s. **CHEVAL AND COMMON TOILET TABLES**—30s., 35s., 40s., 50s. to 200s.; Painted, 11s. 6d., 17s. 6d. **DRESSING-GLASSES AND TOWEL RAILS**—2s. 6d. to 75s.; Towel Rails, 5s. 6d. to 10s. 6d. Toilet Ware, Commodes, Pedestal Cupboards, etc., in Immense Variety. Upwards of Seventy Patterns of Brass, Iron, and Wood Bedsteads to select from. Spring Mattresses, Hair, Wool, and Flock Mattresses, Feather Beds, Pallasses, Bolsters, Blankets, Quilts, etc., Venetian Blinds, etc., etc.



## REIDS' £8 CASKS OF SHERRY

Containing 6 Dozens each,

Usually sold at 36/ per Dozen, but by this mode of purchase will only cost 27/.

---

*Carriage paid to any Railway Station.*

---

REID BROTHERS & CO. solicit attention to the excellent quality of the above, and would recommend this mode of purchase, which obviates the uncorking and decanting of Bottles, secures uniform brilliancy of condition, and effects a considerable saving in the Price of the Wine.

---

75 GEORGE STREET, EDINBURGH.

---

*They supply Three different Styles of these £8 Casks of Sherry, viz.,*

*No. 1. Sealed Yellow, Very Pale and Dry;*

*No. 2. „ Green, Medium Pale, and Dry;*

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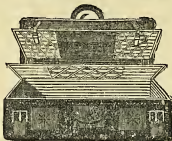
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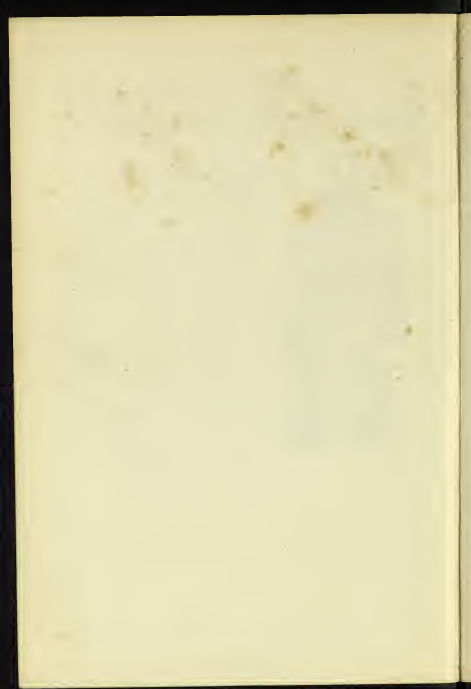
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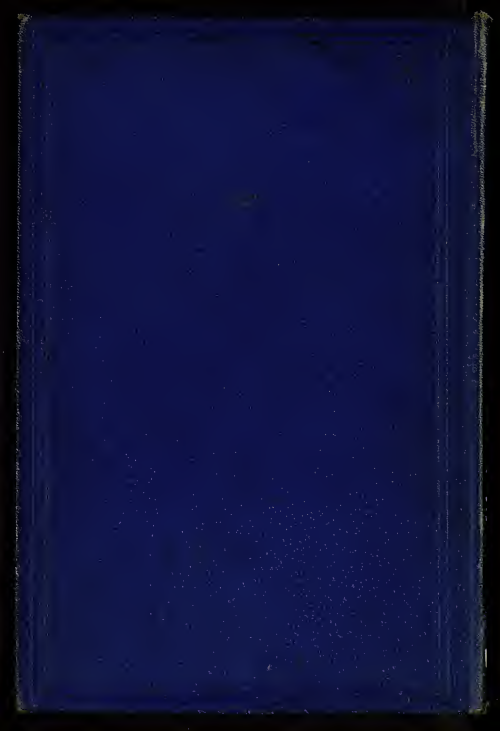
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